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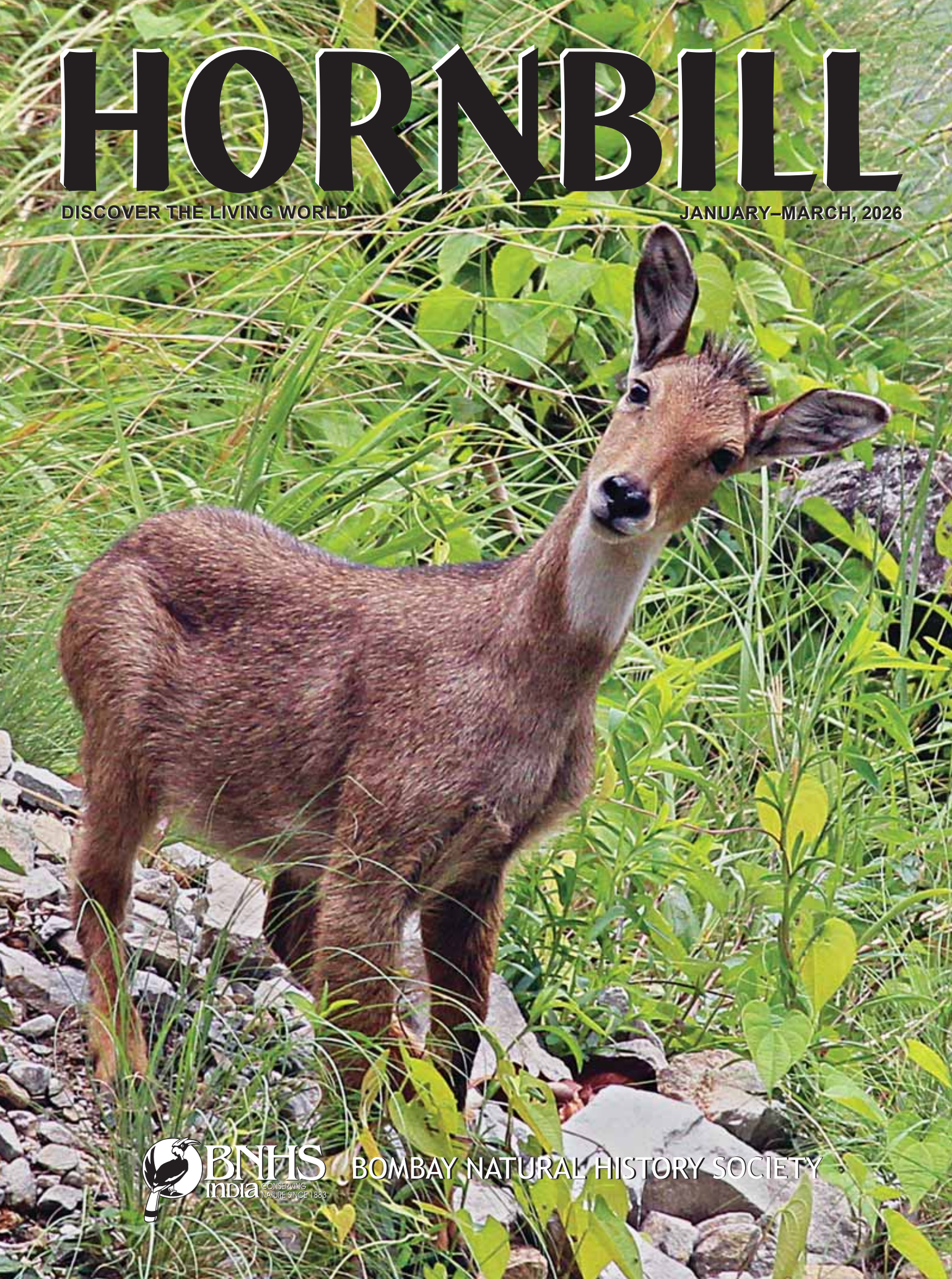

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Published and printed quarterly
by the Honorary Secretary for the
Bombay Natural History Society,
Printed at Akshata Arts Pvt. Ltd.,
Lower Parel, Mumbai.
Reg. No. RN 35749/79, ISSN 0441-2370.

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Project Tiger became far more than a mission to save a single predator. By protecting tiger habitats, India preserved forests, rivers, grasslands, and wildlife corridors that sheltered elephants, rhinos, swamp deer, and countless lesser-known species. This series begins with Corbett Tiger Reserve, where Kedar Gore explores how conserving the striped king became nature's ultimate umbrella strategy, safeguarding entire ecosystems across the Reserve.

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Ngorongoro is a tranquil landscape in Africa where an extraordinary diversity of flora and fauna has thrived for centuries. Yasmin Khan, Hemalatha Ramachandran, and Medha Rajadhyaksha share their experiences of birdwatching in this 'living Eden'. They believe that fostering a culture of birdwatching not only helps protect these beautiful life forms, but also enriches our own lives.

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Editorial

Change is both inevitable and essential in our pursuit of progress. The editorial team of *Hornbill* has always strived to bring about positive change in order to provide you with the very best. We reflected on 'Project Tiger', which was launched in 1973 merely as a project, without any legal status. In 2023, it completed 50 years. We decided to revisit some of the earliest Tiger Reserves and briefly review their present status, how they have transformed over the past five decades, and whether the governments and local stakeholders have truly achieved the vision that inspired their declaration as 'Tiger Reserves'. However, we are not merely assessing whether tiger numbers have increased. Rather, we aim to explore whether these reserves have fulfilled the broader objective of conserving native and lesser-known species. We approached passionate individuals across India who have consistently followed these Tiger Reserves over long periods and personally witnessed decades of local changes, both positive and negative, and their transformation.

This issue of *Hornbill* brings you the first article in this series, contributed by BNHS Governing Council member Kedar Gore: 'The Glorious 50 Years of Project Tiger in Corbett Tiger Reserve'. I am sure you will preserve future issues of *Hornbill* as part of this valuable collection.

We are often biased towards nature in a particular way and wish only to see forests, rivers, seas, and wildlife. But what about mountains, valleys, and craters? These are unique formations on planet Earth. We reached out to passionate earth explorers from former Sophia College, Mumbai, staff – Yasmin Khan, Hemalatha Ramachandran, and Medha Rajadhyaksha – who visited the Ngorongoro Crater in Africa and brought us an excellent piece titled 'Ngorongoro: A Living Eden'.

The Ngorongoro Crater, located in northern Tanzania within the Ngorongoro Conservation Area, is 16–19 km in diameter, spread across 304 sq. km, and has a basin 600 m deep. Although the crater has been declared a UNESCO World Heritage Site, the authors describe the threats posed to this beautiful landscape and conservation area by uncontrolled tourism.

In the Builders and Guardians section, you will read about Colonel Sir George Clarke and Freeman Freeman-Thomas, the sixth and seventh Presidents of the Bombay Natural History Society (BNHS), respectively. Colonel Sir George Clarke, 1st Baron Sydenham of Combe, lived for 85 years and served as Governor of Bombay from 1907 to 1913, during which time he was also the sixth President of BNHS. Clarke was educated at Wimbledon and the Royal Military Academy, Woolwich. An army officer by profession, he served as a Royal Engineer in Egypt (1882) and Sudan (1885), and was renowned for his expertise in fortification and defence. Prior to coming to Bombay, he served as Governor of Victoria (1901–1903) and Secretary to the Committee of Imperial Defence.

Freeman Freeman-Thomas, 1st Marquess of Willingdon, served as the seventh President of BNHS during his tenure as Governor of the Bombay Presidency from 1913 to 1918. Elected to the British House of Commons from the Borough of Hastings, he later served as Secretary to the British Prime Minister and as Lord-in-Waiting to King George V.

You will also enjoy reviews of several engaging books – MINIATURE GIANTS: INSECT STORIES BEYOND THE ORDINARY by Geetha Iyer, and WHEN BIRDS TALKED: FOLKLORE OF THE HILLS by Neha Negi – both published by Penguin Random House India Pvt. Ltd and reviewed by Dr Asad R. Rahmani.

Beyond the spotlight and the headlines stand the silent architects of conservation – the forest guards, trackers, community members, and unsung researchers who devote their lives to wildlife. Through long nights, unforgiving terrain, and the solitude of the forest, they strive to keep the heartbeat of the wild alive for another generation. In this issue, Dr Sujit Narwade highlights the efforts of a Bishnoi forest guard – a Guardian of the Grassland – working to save the Critically Endangered Great Indian Bustard, whose grassland habitat in Rajasthan's Jaisalmer district is increasingly threatened by fragmentation and expanding transmission lines.

Pheasants are renowned for their flamboyant plumage and spectacular displays. Yet few can compare to the Himalayan Monal *Lophophorus impejanus*, a jewel of the high Himalaya found at elevations between 2,000 and 4,400 metres. Nowadays, it is increasingly difficult to witness the rare display of the Himalayan Monal in the wild. Thanks to author Kallol Mukherjee, who shares this remarkable experience with us in the article 'A Duel on the Mountain Stage'.

In previous Conservation Notes, you have already read about how severely our grasslands are affected by numerous threats, including infrastructure development, while policymakers continue to neglect their ecological importance by treating them as wastelands. It is therefore no surprise that one of India's magnificent grassland ecosystems, Velavadar, is also struggling to survive. Several studies conducted by BNHS scientists in the 35 sq. km Blackbuck National Park at Velavadar highlight its ecological uniqueness. You will enjoy the article by Ram Gopalakrishnan, which may inspire you to visit this national park, located just a three-hour drive southwest of Ahmedabad, where you can witness harriers and the rare Indian wolf.

I have often observed that many nature lovers, while passionately following one particular species, tend to overlook the countless others inhabiting the same forest. The article by BNHS scientist Dr Sachin Ranade reminds us of the importance of keeping both our eyes and ears open to unexpected discoveries. During his travels through the scenic Morni Hills in Haryana, part of the outer Himalayan Shivalik range, he had a fascinating encounter with earthworms. Although he has spent the last 25 years working on vulture conservation, he never allowed his vision to remain fixed only on the skies. Instead, he discovered remarkably long and large earthworms inhabiting this hilly forest ecosystem.

Please do not forget to read the advertisement for one of India's finest wildlife publications and purchase the new book MAMMALS OF INDIA by P.O. Nameer and A.J.T. Johnsingh at its pre-publication discounted price.

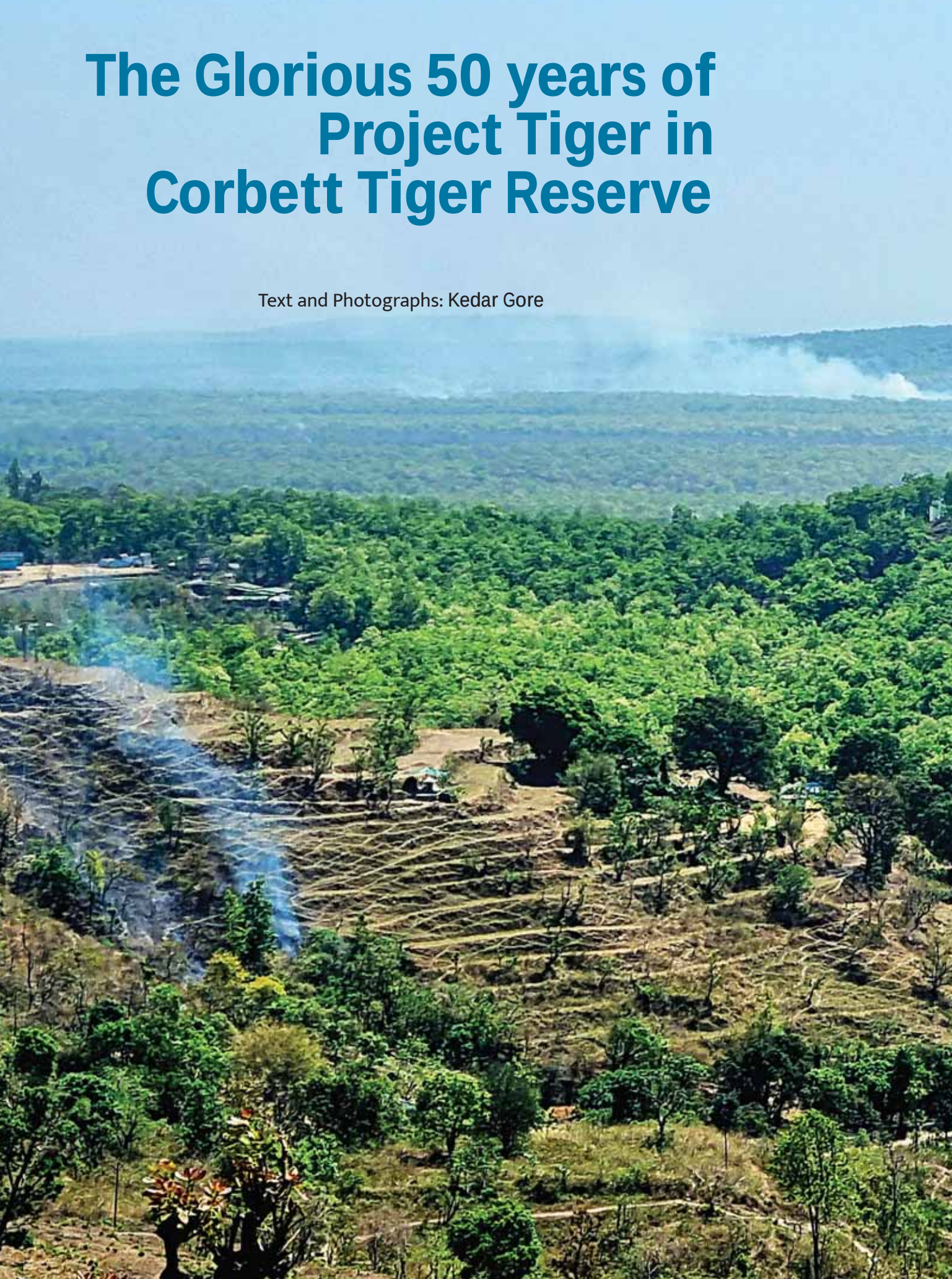
In Conservation Notes, I have written several recent articles on the status of grasslands in India. Coincidentally, the Supreme Court of India was simultaneously hearing an important petition concerning the protection of the Aravalli Mountains, while large protests unfolded across northern states and social media platforms. I therefore decided to visit the Aravallis personally and bring you a ground report. I hope you will enjoy my article, 'Aravallis at the Crossroads'.

Enjoy reading, and please do share your feedback.

Kishor Rithe

The Glorious 50 years of Project Tiger in Corbett Tiger Reserve

Text and Photographs: Kedar Gore



It was in 1999 that I first stepped into the Corbett Tiger Reserve (CTR), as the leader of a nature camp for WWF-India subscribers. The spectacular landscape of Shivalik Hills, densely forested Bhabar tracts, Terai grasslands, and Himalayan rivers left me spellbound. The beauty of Corbett completely overwhelmed me.

Named in honour of the legendary hunter-turned-conservationist Edward James Corbett, popularly known as Jim Corbett, Corbett National Park was the first of the nine protected areas to be included under India's ambitious Project Tiger, in 1973.

In the 1990s, I first read Jim Corbett's MANEATERS OF KUMAON, and I dreamt of visiting this forest, which provided rich habitat for the Asian Elephant, Gharial, Hog Deer, King Cobra, Great Hornbill and, of course, the Bengal Tiger, along with many other important species. More than 580 species of birds have been recorded across CTR's diverse habitats, which support wildlife ranging from large cats and vultures to monitor lizards and the Golden Mahseer.

We stayed at the Dhikala Forest Complex and the Jhirna Forest Rest House. Our stay at Jhirna was especially exciting because of the absence of electricity and solar power. It was April: the days were sultry and hot, while the nights remained warm. The alarm calls of Spotted Deer and Terai Langurs, piercing through the darkness, often kept us awake as we wondered whether the predator nearby was striped or spotted. We had our share of adrenaline-filled moments during our short stay. A male tiger and his mate clearly disapproved of elephants carrying tourists through his territory in the Dhikala *chaur* (grassland), disturbing his private moments. Although we maintained a safe distance, he suddenly charged, roaring ferociously, sending our elephants retreating in panic until they finally reached the Dhikala Tourist Complex.

Watching a large herd of wild elephants crossing the mighty Ramganga River was an unforgettable spectacle. In five days, we recorded more than a hundred bird species, including the Great Hornbill, Pallas's Fish-eagle, Tawny Fish-owl, Maroon Oriole, Rosy Minivet, and Common Green Magpie. The thorny *Ziziphus* shrubs in the Jhirna zone were fruiting profusely, and bulbuls, barbets, and Rhesus Macaques scrambled for the ripe *ber* fruits. I was mesmerised by the sheer magnificence of Corbett's forests, wildlife, and natural beauty. It was undoubtedly one of the most beautiful forests I had ever visited. Little did I know then that, ten years later, I would work for The Corbett Foundation (TCF), an organisation founded in 1994 by the late Shri Dilip Khatau and Smt Rina Khatau, with the vision of promoting coexistence between people and wildlife.

Jim Corbett traversed the forests of the Kumaon region for nearly forty years in pursuit of tigers and leopards that had turned to preying upon people. Some of these incidents occurred in Mohaan and Kanda, within what is today the CTR landscape. He persuaded the British administration to declare the

The terai grassland of CTR is crucial for several birds and mammals

Red-headed Vulture resting on a dry river bank in CTR

The Terai Langur relishing a Bael *Aegle marmelos* fruit

pristine forests of the Ramganga Valley a national park. Thus, in 1936, Hailey National Park, covering around 300 sq. km, became India's first national park. It was later renamed Ramganga National Park in 1954, and rechristened Corbett National Park in 1956.

Recognising its ecological importance, the Government of India included Corbett National Park, covering around 520 sq. km, as the first of the nine protected areas under Project Tiger. Several adjoining forest areas were later incorporated to create a larger and better-connected habitat for tigers and other wildlife.

An Asian Elephant tusker in CTR wandering in search of a mate

Ironically, it took more than three decades for the area to be formally notified as a tiger reserve. In 2010, the Reserve was declared over an area of 1,288.31 sq. km, including Corbett National Park (520.82 sq. km), Sonanadi Wildlife Sanctuary (301.17 sq. km), and a buffer area of 466.32 sq. km comprising surrounding reserved forests. Shri A.S. Negi, the first Chief Wildlife Warden of Uttarakhand (then Uttaranchal), played a pivotal role in expanding the park to its present size during his tenure as the Director of Corbett National Park.

Dr A.J.T. Johnsingh, renowned wildlife biologist extensively studied the Corbett landscape and worked closely with successive field directors to strengthen habitat conservation for tigers and their prey. In his book ON JIM CORBETT'S TRAIL AND OTHER TALES FROM THE JUNGLE, he lamented the extinction of the Greater One-horned Rhinoceros and the Barasingha from CTR.

By the 1960s, tiger numbers in India had plummeted to fewer than 2,000 individuals – almost a 96 per cent decline from an estimated 40,000 at the beginning of the twentieth century. This drastic fall resulted from decades of indiscriminate hunting, much of it encouraged during the colonial period. The rapid habitat loss caused by deforestation, agricultural expansion, infrastructure development, human encroachment, and rampant poaching for skins and body parts further accelerated the crisis.

Top: Stork-billed Kingfisher
Centre: Blue Whistling-Thrush
Bottom: White-capped Water-redstart
Right: Grey Bushchat

In 1969, following the 10th General Assembly of the International Union for Conservation of Nature (IUCN) in New Delhi, Prime Minister Indira Gandhi decided to ban tiger hunting. Recognising the tiger's ecological and cultural importance, the Government of India launched the Project Tiger in 1973 as an urgent initiative to safeguard critical habitats, prohibit hunting, restore prey populations, and establish protected areas where the species could recover. Today, India supports an estimated 3,682 tigers, which is around 75 per cent of the world's wild tiger population, making Project Tiger a globally recognised conservation model.

One of the fundamental principles of any tiger reserve is that its core zones must remain inviolate, ensuring undisturbed habitat for tigers. This policy has resulted in the relocation of human settlements from core areas and in extensive habitat management to maintain grasslands that support herbivore populations, which in turn sustain tigers. Between 1973 and 2001, a total of 411 families from four villages inside Corbett National Park were relocated near the towns of Ramnagar and Kashipur. Van Gujjars, a nomadic pastoral community from the Himalayan foothills of Jammu and Kashmir, Himachal Pradesh, and Uttarakhand, who had long been part of this landscape, were relocated from Sonanadi Wildlife Sanctuary in 2013. These relocations have reduced anthropogenic pressures within CTR.

According to the All India Tiger Estimation 2022, the entire Shivalik Hills and Gangetic Plains landscape of Uttarakhand supports around 560 tigers, representing an increase of more than threefold since 2006. CTR alone supports approximately 260 tigers – the highest count recorded for any tiger reserve in India. More than fifty years of focused conservation programmes have clearly produced significant results. CTR has acted as a source population for tigers across the region because of its connectivity with adjoining forest divisions, including Ramnagar, Terai East, Terai West, Terai Central, Lansdowne, Nainital and Almora in Uttarakhand, and Bijnor in Uttar Pradesh. This connectivity has enabled the natural dispersal of tigers across the wider landscape.

CTR and these adjoining forest divisions should therefore be viewed as one large conservation unit, essential for maintaining long-term tiger connectivity eastwards through Nandhaur Wildlife Sanctuary into Nepal's Terai belt, and westwards towards Rajaji Tiger Reserve.

The Kosi River is a lifeline for the wildlife of CTR and the adjacent Ramnagar Forest Division

Unfortunately, much of this connectivity has become fragmented due to urbanisation, unchecked expansion of tourism infrastructure, and riverbed mining. Connectivity between Corbett and Rajaji tiger reserves has also been severely compromised by linear infrastructure development, increasing the risk of ecological isolation for the tiger population in Rajaji. Consequently, the Government of Uttarakhand initiated a tiger translocation programme in 2021, under which five tigers – two males and three females – were moved from Corbett

to Rajaji. Encouraged by the successful breeding of the two translocated tigresses, authorities now plan to shift five more tigers to Rajaji.

CTR forms the catchment for several important rivers, including the Ramganga, Sonanadi, Palain, Mandal, and Kosi, along with numerous forest streams that sustain both wildlife and local communities. The Ramganga is the only river in this landscape where Gharials breed. These critically endangered, fish-eating reptiles are endemic to the Indian subcontinent. It is believed that the population in the Ramganga has increased from only five individuals recorded in 1974 to more than 100 today – clearly a result of the protection received under Project Tiger.

The endangered Golden Mahseer, a large freshwater carp, is another keystone species inhabiting the rivers of CTR. Sadly, the Mahseer remains highly prized both by anglers and as a table fish. The Kosi River, which flows outside CTR, still contains a few pools where Golden Mahseer survive.

In 2018, the Wildlife Institute of India, TCF, and the Ramnagar Forest Division jointly undertook a population assessment of Golden Mahseer in the Kosi. The survey estimated around 5,000 adult mahseer in twenty-five deep pools along a 32 km stretch of the river between Kunkhet and the Kosi Barrage in Ramnagar. Destructive fishing methods, including dynamite blasting, the use of bleaching powder, and indiscriminate waste disposal, pose serious threats to the river's aquatic fauna.

The Near Threatened Eurasian Otter and the Vulnerable Smooth-coated Otter have both been

The areas outside CTR, but part of the larger Corbett landscape, are impacted by negative human-wildlife interactions

reported from CTR. While Smooth-coated Otters have been sighted in the Ramganga, Palain, Mandal, and Kosi rivers during the past decade, there have been no recent records of the Eurasian Otter.

CTR also supports the Hog Deer, a species dependent upon the tall grasslands of the Terai region. Both the tiger and the Hog Deer are listed as Endangered on the IUCN Red List, highlighting their urgent conservation needs. During the 1970s, construction of the Kalagarh Dam on the Ramganga submerged around 16 km of riverine grasslands and lowland forest between the dam and Dhikala, a habitat crucial for Hog Deer. The areas that once supported herds of more than a hundred Hog Deer across the Terai witnessed a dramatic decline in sightings.

According to recent research published by CTR, only 189 individuals now survive in Paterpaani, Phoolai, Dhikala, Khinanauli, and Dhela. Over the years, habitat management within CTR has primarily focused on maintaining open meadows and short grasslands to boost populations of Spotted Deer (*chital*), a preferred prey species of tigers. Although this strategy has contributed significantly to tiger recovery, it has not aided the recovery of the Hog Deer population. In 2025, TCF joined hands with the CTR management to study the habitat suitability and ecological requirements of the Hog Deer. It is hoped that this initiative will facilitate population recovery of Hog Deer in the near future.

The non-governmental organisations have complemented the Project Tiger in important ways and their on-ground conservation programmes have

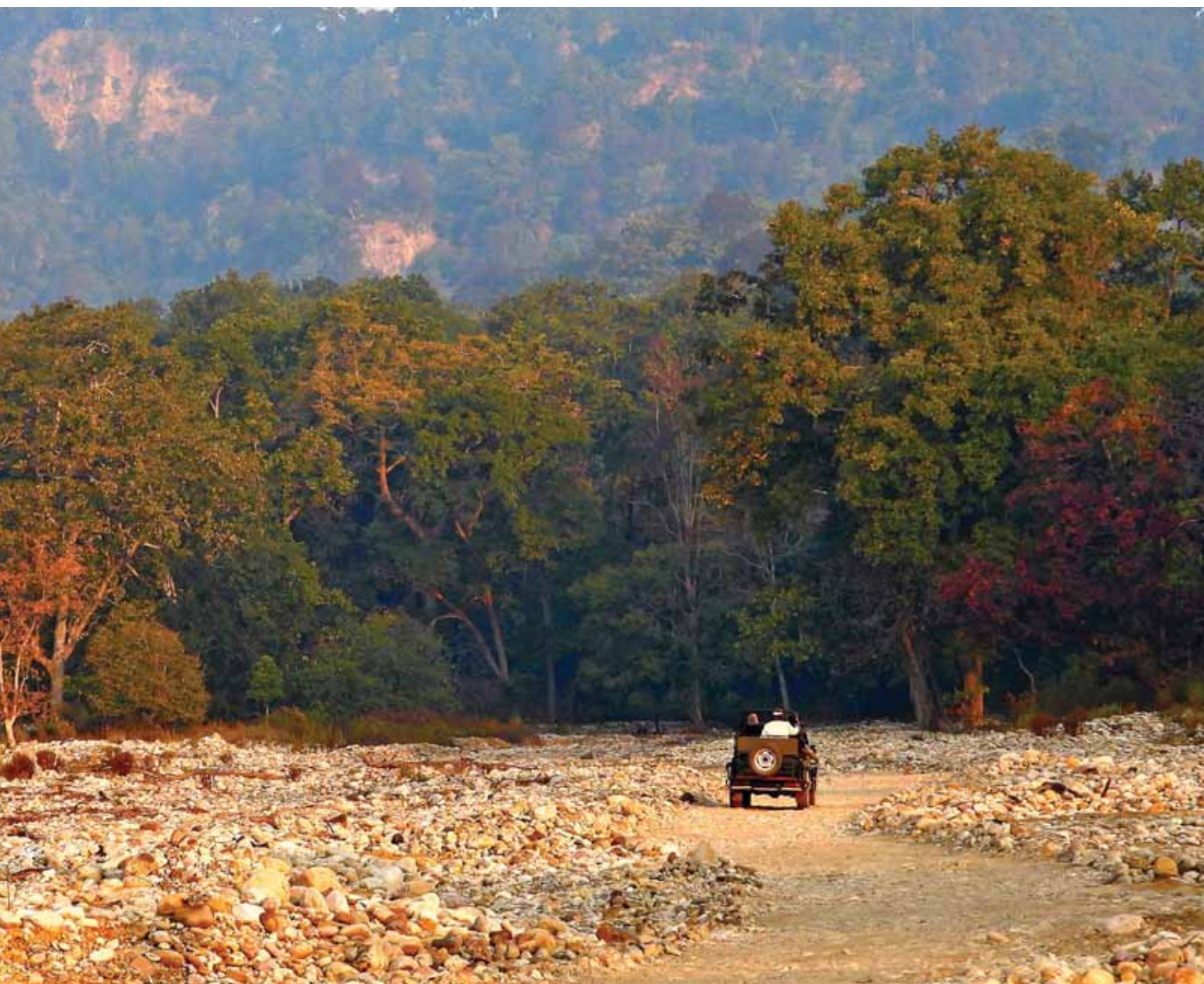
Agricultural fields along the forest fringes often attract sambar, wild pigs, and elephants, resulting in significant conservation challenges

undoubtedly played a significant role in increasing the tiger numbers. The areas outside the core zone of CTR comprise of a mosaic of forests, villages, towns, and other human-dominated landscapes. The rising tiger population within this wider landscape has led to increasing incidents of negative human–wildlife interactions.

Since 1998, The Corbett Foundation and WWF-India have implemented a Livestock Compensation Programme that provides prompt interim *ex gratia* financial assistance to villagers who lose livestock to tigers and leopards. The scheme was pioneered by TCF in consultation with Dr M.K. Ranjitsinh, the first Director of Wildlife Preservation, Government of India, the architect of the Wild Life (Protection) Act, 1972, and a trustee of The Corbett Foundation.

Over the past twenty-seven years, more than 18,000 incidents of livestock depredation by tigers and leopards have been recorded across approximately 350 villages in the CTR buffer and adjoining forest divisions, with interim compensation provided under this scheme. The programme has played an invaluable role in reducing negative perceptions of the large cats and promoting coexistence with large carnivores.

CTR attracts large numbers of tourists, generating substantial revenue and supporting conservation awareness. Nearly 3,50,000 tourists visited CTR in



Tourism is important and supports local livelihoods, but its implementation requires a disciplined approach

2023–24, generating revenue of around INR 23 crore. Wildlife tourism can serve as an effective conservation tool, but only when managed responsibly.

Sadly, a growing number of hotels and resorts around CTR are now being promoted as wedding destinations. The calls of Sambar, Spotted Deer, and tigers that once echoed through the forests are increasingly drowned out by loud music played late into the night. This has become a common occurrence, with few concrete measures taken by the local administration to curb the problem. The issue of unchecked tourism infrastructure and its associated problems urgently needs to be addressed in order to preserve the sanctity, ecological integrity and reputation of CTR.

In recent years, CTR has also attracted attention for unfortunate reasons. The Supreme Court of India directed the Central Bureau of Investigation to investigate the loss of more than 118 ha of forest following the felling of approximately 6,000 trees for the construction of a proposed tiger safari in the Pakhro range. Ironically, this project was inaugurated by the then Forest Minister of Uttarakhand. The Supreme Court ordered demolition of the infrastructure created for the safari, along with ecological restoration of the damaged habitat. The Uttarakhand Government must ensure that preserving the legacy of CTR as a 'national natural treasure and a living museum of natural history' remains an overriding priority.

With the highest tiger density in India, CTR and its surrounding forests also face considerable pressure from wildlife poaching. In 2015, a CBI investigation traced a tiger skin seized from smugglers in Nepal back to CTR, creating public concern. The case remains under consideration before the Supreme Court. Nevertheless, such incidents should not diminish recognition of the dedication and hard work of the many officers and frontline staff who work tirelessly to protect tigers, elephants, and other wildlife.

CTR was the first protected area in India to deploy the E-eye surveillance system, comprising high-technology cameras mounted on towers along sensitive boundaries. Using infrared and thermal imaging, the system helps monitor wildlife movement and prevent poaching through real-time surveillance alerts. The frontline staff of CTR deserve immense appreciation, especially as they often face hostility from local communities during incidents of human–wildlife conflict.

Like most Protected Areas across India, CTR faces severe invasion of plant species such as *Ageratina adenophora*, *Ageratum conyzoides*, *Chromolaena odorata*, and *Lantana camara*. These exotic invasive plants suppress native vegetation, which in turn negatively affects herbivore populations and the predators that depend upon them. Ecological restoration of such degraded areas into diverse mixed-forest habitats should therefore be regarded as a critical conservation priority.

Although charismatic species such as the tiger often become symbols of conservation because of their iconic status and their ability to capture public imagination, the conservation efforts should not focus exclusively on such charismatic species but must address the larger goal of biodiversity conservation. While flagship species can generate visibility and financial support, they do not automatically guarantee protection for lesser-known species or restoration of degraded habitats.

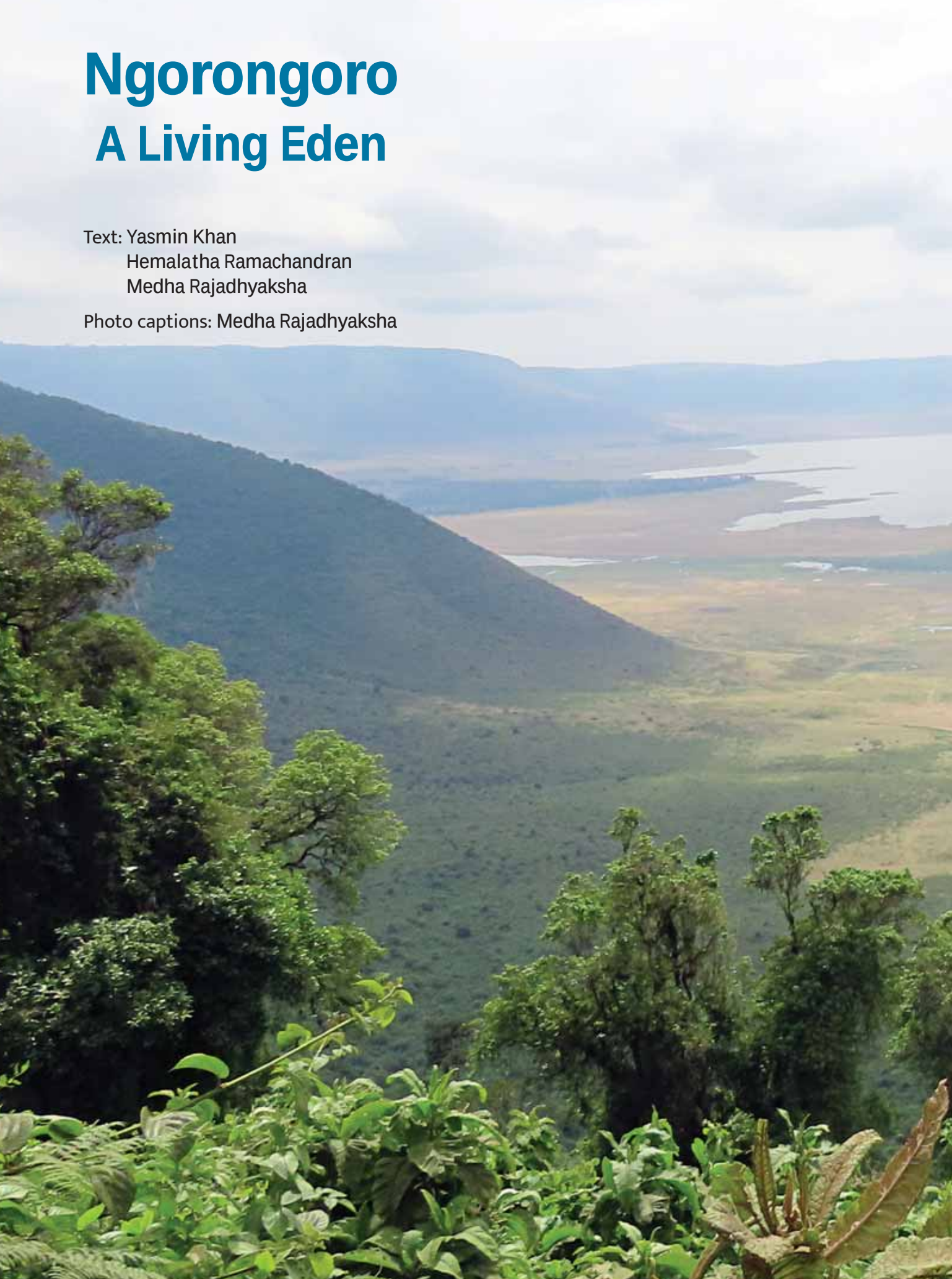
The distribution and conservation status of smaller cats, the Striped Hyena, Mainland Serow, Northern King Cobra, Eurasian Otter, Golden Mahseer, and many other species within CTR have often remained peripheral considerations under Project Tiger. The long-term survival of tigers depends upon sustaining good herbivore populations, secure and healthy habitat, and local community support. It is therefore imperative that by adopting a holistic biodiversity conservation approach at the landscape level is pivotal in CTR's long-term conservation vision.

Kedar Gore is an experienced wildlife conservationist, a member of the BNHS Governing Council, and Director of The Corbett Foundation.

Ngorongoro
A Living Eden

Text: Yasmin Khan
Hemalatha Ramachandran
Medha Rajadhyaksha

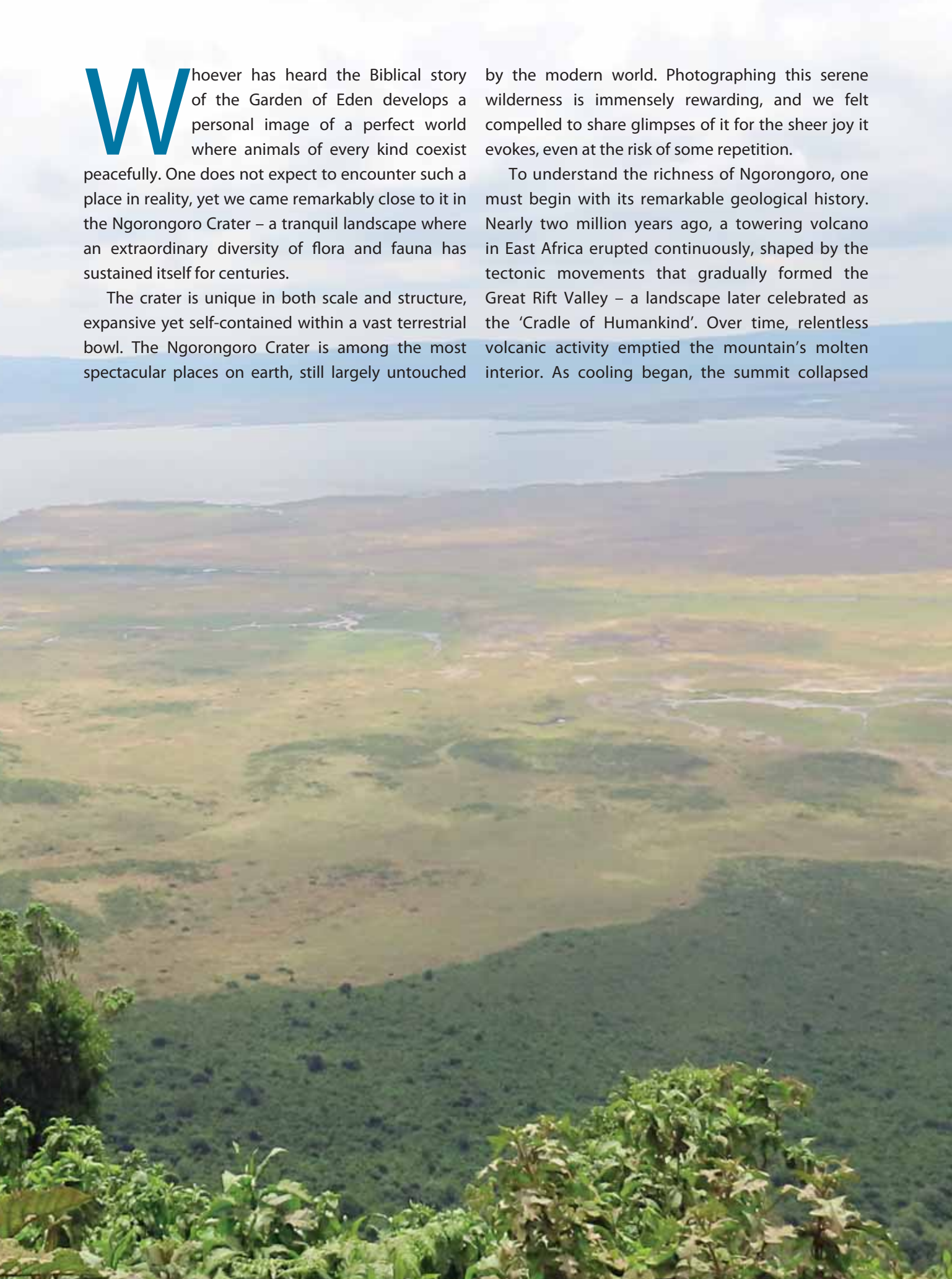
Photo captions: Medha Rajadhyaksha



Whoever has heard the Biblical story of the Garden of Eden develops a personal image of a perfect world where animals of every kind coexist peacefully. One does not expect to encounter such a place in reality, yet we came remarkably close to it in the Ngorongoro Crater – a tranquil landscape where an extraordinary diversity of flora and fauna has sustained itself for centuries.

The crater is unique in both scale and structure, expansive yet self-contained within a vast terrestrial bowl. The Ngorongoro Crater is among the most spectacular places on earth, still largely untouched by the modern world. Photographing this serene wilderness is immensely rewarding, and we felt compelled to share glimpses of it for the sheer joy it evokes, even at the risk of some repetition.

To understand the richness of Ngorongoro, one must begin with its remarkable geological history. Nearly two million years ago, a towering volcano in East Africa erupted continuously, shaped by the tectonic movements that gradually formed the Great Rift Valley – a landscape later celebrated as the 'Cradle of Humankind'. Over time, relentless volcanic activity emptied the mountain's molten interior. As cooling began, the summit collapsed



inward, creating a vast volcanic depression that is known as a caldera.

Over time, this fertile and sheltered basin evolved into a mosaic of ecosystems. Lakes, marshes, rivers, grasslands, and forests emerged within its enclosed walls, inhabited by an astonishing variety of flora and fauna. Pastoral human communities later arrived and became custodians of these flourishing ecosystems. Today, the Ngorongoro Crater is an almost intact natural basin, with steep unbroken walls spanning roughly 16–19 kilometres in diameter and covering approximately 304 square kilometres. A visit to the crater offers a rare glimpse into a prehistoric landscape that is largely unchanged by time.

The Ngorongoro Crater, a Rift Valley biodiversity hotspot, is dominated by montane forests within the larger Serengeti ecosystem. Short-grass plains, highland forests, savanna woodlands, moorlands, and high-altitude grasslands blend into one another. The moorlands range from swampy marshes to shrubby and grassy expanses.

The grasslands are favoured by wildebeest, giraffes, gazelles, elephants, and large herds of buffalo, often shadowed by lion prides. Zebras and wildebeest move in impressive migratory groups. The Munge Stream winds across the crater floor, sustaining predators concealed in riverside vegetation before spreading into the Mandusi Swamp. This wetland ecosystem supports breeding birds, grazing zebras, refuge-seeking elephants, wallowing hippos, and predators that hunt along its edges. At the centre of the crater lies Lake Magadi, also called Lake Makat, both meaning 'soda' in local languages, its shores dusted with white mineral deposits and frequented by spectacular birdlife.

A jeep ride across these merging habitats feels like a celebration of biodiversity compressed into a limited expanse. Yet amid the spectacle of large mammals, the winged wonders often get only passing attention. Here, the spotlight turns on some of the most intriguing birds of the Ngorongoro Crater and surrounding regions, especially those with similarities to birds found in India.

Africa's avian diversity has its own special charm. Here are some of the most striking species commonly seen in the Ngorongoro region:

Secretary Bird

Often described as the 'Falcon of the hunt', the Secretary Bird is famous for its exceptionally long legs and remarkable snake-hunting abilities. Found across Sub-Saharan Africa, especially within protected grasslands and national parks, it spends much of its time walking rather than flying, often covering 20–30 kilometres a day in search of prey.

Secretary Bird are opportunistic feeders and usually occur in pairs. They attack prey by forcefully stomping with their feet while simultaneously spreading their wings and raising their crest feathers. Monogamous pairs perform both aerial and terrestrial courtship displays and build enormous nests, sometimes over a metre wide, in thorny acacia trees. Habitat degradation has placed the species in the Vulnerable category.

With long stilt-like legs and quills atop its head,
The Secretary Bird strides – snakes beware, tread!
[Image: S.K. Sunil Singhal]

Hamerkop

The Hamerkop is a medium-sized wading bird found near wetlands, wooded forests, and well-watered savannas across Africa. Its partially webbed feet are unusual among birds of its kind. Omnivorous in diet, it feeds on frogs, fish, and a variety of small aquatic creatures. It often hunts patiently in shallow waters, striking swiftly at unsuspecting prey.

The species is particularly renowned for its enormous nests, which are often built on tree forks over water. Hamerkops display an almost compulsive nesting behaviour, constructing several large nests each year. Wetland pollution and declining water quality increasingly threaten their habitat.

Grey Crowned Crane

The Grey Crowned Crane, the national bird of Uganda, is among Africa's most elegant birds. Their striking golden crown of stiff feathers makes them easily recognisable across the African savannah. Found in wetlands and grasslands, it has adapted remarkably well to feeding in agricultural landscapes. By stamping their feet, these cranes disturb insects hidden in vegetation before capturing them.

They breed in temporary or permanent wetlands amidst tall reeds. However, climate change and shrinking wetland-grassland ecosystems have intensified pressure on their populations. Community-based conservation initiatives have shown promising results in protecting the species.

Brown-bodied and hammer-headed, it fishes with skill,
In wetlands where frogs abound, the Hamerkop feeds its fill
[Image: S.K. Sunil Singhal]

Elegant in black, white, and brown,
A corona of golden plumes forms its shining crown
[Image: S.K. Sunil Singhal]

Martial Eagle

The Martial Eagle is among Africa's largest eagles and an apex predator of the grasslands. Distinguished by its immense wingspan and powerful build, it performs dramatic aerial displays during courtship.

Females undertake most incubation and brooding duties, while males provide food. With exceptional eyesight, it can detect prey from remarkable heights while soaring. As a long-lived predator dependent on large nesting trees and expansive hunting territories, the Martial Eagle has suffered from habitat destruction and declining tree cover. It is currently listed as Endangered by the IUCN.

Bare-faced Go-away-Bird

The Bare-faced Go-away Bird is an African turaco with a bushy crest, and a white head and breast. It derives its name from the bare patch of black skin around its eyes and beak. When alarmed, it emits a loud call that sounds like 'G'way or 'Go away', serving as an alarm signal that warns nearby wildlife to flee. The species is largely arboreal and is commonly found in open woodlands and acacia-dotted savannahs.

The species is widespread and is classified as Least Concern by the IUCN.

With pale belly, brown mantle, and a proud short crest,
The Martial Eagle soars high, an apex hunter at its best
[Image: Hemalatha Ramachandran]

With grey bushy crest and white head and breast,
The Gray Go-away Bird calls loudly from its woodland rest
[Image: S.K. Sunil Singhal]

Red-billed Oxpecker

The Red-billed Oxpecker is found almost exclusively on the backs of large ungulates. It has a distinctive red bill and a red eye surrounded by a yellow wattle. It feeds on ticks, mites, and other ectoparasites found on its mammalian hosts. Its preferred habitat includes savannah woodlands and farmlands.

The species is largely monogamous and exhibits co-operative breeding behaviour, with additional helpers assisting the breeding pair in caring for the nestlings. It is widespread across East and north-east Africa and is classified as Least Concern by the IUCN.

Egyptian Goose

The Egyptian Goose is native to Africa; however, its popularity as an ornamental bird has led to its introduction into other regions, including Europe and the America. It is commonly found in semi-open habitats, usually close to freshwater bodies, and is often seen grazing along grassy shorelines. Egyptian Geese typically mate for life, and both parents share responsibility for raising the young.

Across both continents, habitat degradation, invasive species, shrub overgrowth in grasslands, and encroachment into woodland ecosystems are steadily threatening these avian treasures.

With red bill and bright red eyes ringed in yellow light,
The Red-billed Oxpecker rides mammals, feeding on ticks and mites
[Image: Yasmin Khan]

With bright white forewings flashing as it glides ashore,
The Egyptian Goose grazes calmly by the freshwater shore
[Image: S.K. Sunil Singhal]

Birds Common to India and Africa

Despite the vast geographical distance between India and Africa, several bird genera are common to both continents. Their appearances are strikingly similar, often leading to confusion between species. Perhaps these resemblances arise from shared evolutionary ancestry dating back to Gondwana, when the two land masses were connected, or from adaptation to comparable ecosystems.

Marabou Stork and Greater Adjutant

With dagger-like bill and bare pink head, it soars with eerie grace;
Its skinny neck and white underwings make a ghostly silhouette in space
[Image: Yasmin Khan]

Bare-headed, big-billed, imposing in stance;
It combs Assam's wetlands where few dare to glance
[Image: Sankara Narayanan Balasubramanian]

The Marabou Stork is a common sight across Ngorongoro and African grasslands. Its distinctive throat pouch is used in courtship, and like its Indian cousin, the Greater Adjutant, it is an opportunistic scavenger. It feeds on carrion, fish, small animals, and even human refuse.

Red-knobbed Coot and Eurasian Coot

Slate-grey upon the marsh with shield and beak so bright,
Two crimson knobs appear in breeding season's sight
[Image: Hemalatha Ramachandran]

Dark-bodied, white-billed, paddling calm and light,
Young birds wear dusky feathers while the adults gleam in white
[Image: Sundararaman Chinnaraj]

The Red-knobbed Coot is found mainly in Sub-Saharan Africa and Morocco. During the breeding season, it develops two distinctive red knobs on its forehead. The Eurasian Coot, widely distributed across Europe, Asia, and Australia, is also a winter visitor and partial resident in India. Although similar in appearance, it lacks the red breeding knobs.

African Sacred Ibis and Black-headed Ibis

Black-beaked and long-legged, a contrast of white and night,
The Sacred Ibis glides across African wetlands – a sacred sight
[Image: Yasmin Khan]

Male and female alike with smoky tail feathers so neat,
Thriving in India's wetlands and city edges where land meets
[Image: Yasmin Khan]

The African Sacred Ibis and Black-headed Ibis inhabit freshwater wetlands, marshes, coastal regions, and even garbage dumps, feeding opportunistically on a varied diet. The Sacred Ibis was revered in ancient Egypt, and is still regarded by some African communities as a symbol of good fortune and prosperity. Across Africa, the species remains abundant.

Kori Bustard and Great Indian Bustard

Checkered at the wing bend and regal in stride,
The Kori Bustard pecks at dry savanna grass with effortless pride
[Image: S.K. Sunil Singhal]

Brown-winged, pale-necked, stately and shy,
A rare treasure of Rajasthan's desert sky
[Image: Nayan Khanolkar]

The Kori Bustard is widespread across African savannas, grasslands, and lightly wooded areas, while the Great Indian Bustard survives in fragments of arid and semi-arid grasslands. Both species are among the heaviest flying birds in the world. The Kori Bustard, though categorized as Near Threatened, remains comparatively widespread.

Blacksmith Lapwing and Red-wattled Lapwing

Grey, black, and white – alert from the start;
Its ringing "tink-tink-tink" can startle the heart
[Image: S.K. Sunil Singhal]

Black breast, red wattles bright;
A sharp "did-he-do-it?" shatters the night
[Image: S.K. Sunil Singhal]

The Blacksmith Lapwing ranges across eastern and southern Africa, while the Red-wattled Lapwing is common throughout South Asia, Southeast Asia, and the Middle East. Both inhabit open fields, grasslands, wetland edges, and human-made water bodies. Both species aggressively defend their ground nests and are currently widespread enough to remain in the Least Concern category.

Ngorongoro's wildlife also faces mounting pressure from uncontrolled tourism. The way forward, in both Africa and India, lies in sustainable eco-tourism – strategies that support conservation while providing livelihoods and shared benefits to local communities. By fostering a culture of birdwatching, we not only protect these beautiful life forms but also enrich our own existence. Preserving these ecosystems is not simply an environmental responsibility; it is a way of affirming the richness and meaning of our own existence.

Yasmin Khan is a retired Associate Professor of Life Sciences at Sophia College for Women. She enjoys travelling across India on birdwatching expeditions and in pursuit of her interest in ornithology.

Hemalatha Ramachandran is a retired Assoc. Prof. of Life Sciences whose post-academic years have been enriched by her passion for travel and wildlife photography, through which she continues to explore and document the natural world.

Medha S. Rajadhyaksha is a retired Professor of Life Sciences at Sophia College for Women. She enjoys travelling and writing popular science books and articles for both adults and children.

ABOUT THE POSTER

KEDAR GORE

Banyan Tree *Ficus benghalensis*

Every species plays an important role in maintaining an ecosystem, but certain species have a far greater influence on their surroundings than others. Such species are often known as keystone species because they help maintain the structure and stability of an ecosystem, even when they are relatively few in number. Their presence supports many other organisms and influences the types and abundance of species found within the habitat. A well-known Indian example is the Banyan Tree *Ficus benghalensis*, a species of fig tree belonging to the genus *Ficus*. Banyan trees produce fruit several times a year and provide food, shelter, and nesting sites for numerous birds, bats, monkeys, squirrels, and insects. In many forests and village landscapes, animals depend heavily on figs, especially during seasons when other fruits are scarce. Other important fig species from India include Mysore Fig *Ficus mysorensis*, *Ficus benjamina*, *Ficus glaberrima*, and *Ficus altissima*, all of which support rich wildlife diversity.

Closely related to the idea of a keystone species is the concept of a flagship species. A flagship species is one chosen to promote awareness and support for biodiversity conservation in a particular region or habitat. The term originates from naval warfare, where the flagship led the fleet; if the flagship safely passed through danger, the remaining ships could follow. Similarly, conserving a flagship species helps protect the wider habitat and the many other organisms living within it. Flagship species are usually well-known and charismatic animals such as the Bengal Tiger, Asian Elephant, and Great Indian Bustard. They are also called umbrella species because protecting them indirectly safeguards countless other species sharing the same ecosystem.

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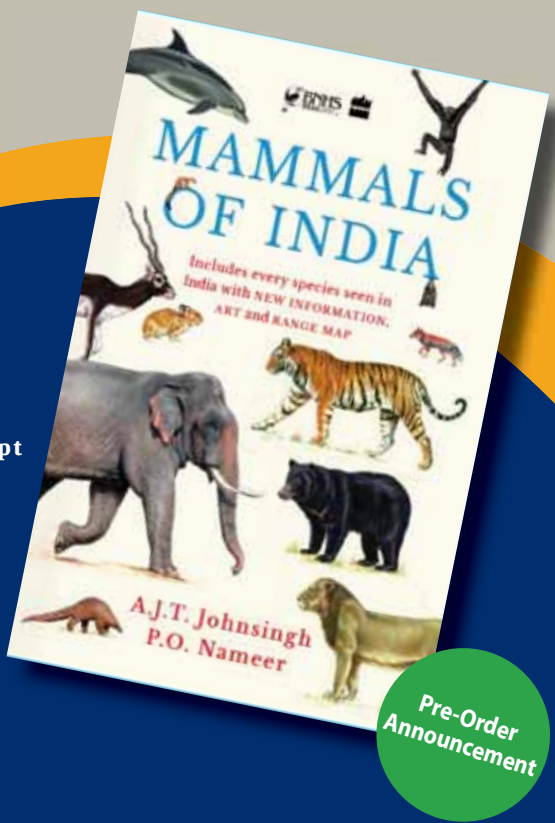
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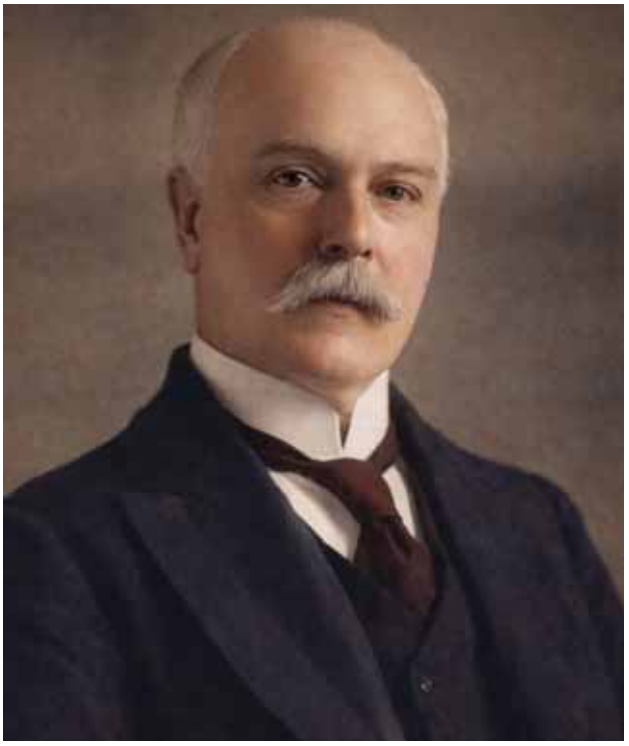
KEDAR GORE

Banyan Tree
Ficus benghalensis

Colonel Sir George Clarke, 1st Baron Sydenham of Combe

6th President of BNHS (1907–1913)

Colonel Sir George Sydenham Clarke, the 1st Baron Sydenham of Combe (4 July 1848 – 7 February 1933) was Governor of Bombay during 1907–1913 and the sixth President of the Bombay Natural History Society. Clarke was educated at Wimbledon and the Royal Military Academy, Woolwich. He was an army officer, served as Royal Engineer in Egypt (1882) and Sudan (1885), and was known for his expertise in fortification and defense. He served as Secretary to the Colonial Defence Committee (1885–1892) and was a key advisor on military administration and coastal defenses. Prior to coming to Bombay, he served as Governor of Victoria (1901–1903) and Secretary to the Committee of Imperial Defence (1904–1907).



Prior to coming over to India, Clarke was known for his books, including the fictional account of a naval war between Britain and France. His books on military fortification were later influential in shaping the British view and plans for trench warfare in the first World War (1914–1918).

In 1882 following the heavy bombardment of the forts at Alexandria by the British Mediterranean Fleet, Clarke, as an engineer officer, had been given the task of assessing the damage to the forts. He found the bombardment had had very little effect on the earthwork defences with only 20 of the 300 guns having been dismounted. Returning from the Mediterranean, Clarke was appointed to a group of officers tasked with the planning of British coast defences overseas.

In 1892, Clarke published 'Fortification: Its Past Achievement, Recent Development and Future Progress'. The book was influential in shaping the British view of military fortification. Clarke advocated the use of small field fortifications which could be built cheaply and rapidly. As Governor of Bombay, he initially supported Indian participation in government, but was later infamous for his conviction of Lokmanya Tilak for sedition in 1908. This led to riots in Bombay and the Governor was reproached by the Secretary of State, John Morley.

During his tenure as Governor of the Bombay Presidency, Lord Sydenham was quite controversial in his dealings with the University of Bombay and it made him most unpopular in Western India. However, he had not started his tenure in a negative manner. He used the first convocation address to make peace with the nationalist sentiment, quoted couplets from the Bhagawad Gita and distanced himself from Macaulay's famous pronouncement of 1835 about education. Drawing from his study of the Gita, Clarke had declared that, "we cannot by education, transform the 'intellect' of an ancient people," and that it would be eminently undesirable. But, his visible commitment was very short lived. Clarke continued to repress sedition and agitation by western-educated Indians, causing concern in London.

A statue of him stands at the entrance to the Institute of Science College, located next to the Oval Maidan in south Mumbai. The then Government College of Commerce, Bombay, was named after him as the Sydenham College of Commerce and Economics, supposedly to acknowledge his munificence. Upon his return to Britain, he was elevated to the peerage as Baron Sydenham of Combe, in the County of Devon. Lord Sydenham of Combe died at his home in Onslow Square, London, in February 1933, aged 84, when the baroncy became extinct.

Freeman Freeman-Thomas, 1st Marquess of Willingdon

7th President of BNHS (1913–1918)

Freeman Freeman-Thomas (1866–1941), 1st Marquess of Willingdon, served as the seventh President of the BNHS during his tenure as Governor of the Bombay Presidency from 1913 to 1918. Over the course of his career, he also held several prominent imperial offices, including Governor of the Madras Presidency, Governor General of Canada (1926–1931), and Viceroy and Governor General of India (1931–1936).

Elected to the British House of Commons from the Borough of Hastings in 1900, Freeman-Thomas later served as Secretary to the British Prime Minister and as Lord-in-Waiting to King George V. During his time at Trinity College, Cambridge, he played for the Cambridge University cricket team and also represented Sussex at the county level.

In 1913, upon his appointment as Governor of Bombay, he was invested as a Knight Grand Commander of the Order of the Indian Empire. The outbreak of the First World War in 1914 brought India into the conflict, and as Governor, Willingdon oversaw the treatment of wounded soldiers returning from the Mesopotamian campaign in Bombay.

It was during this period that Mohandas Karamchand Gandhi (later, Mahatma Gandhi returned to Bombay from South Africa. Willingdon welcomed Gandhi to Government House for a formal meeting and is reported to have described him as 'honest, and for that reason very dangerous'. This was proven to be a nemesis for Willingdon in his later years as the Governor General of India.

In 1917, a severe famine in the Kheda district of the Bombay Presidency devastated the agrarian economy, leaving farmers unable to pay their taxes. Despite the crisis, the government insisted on tax collection and announced a 23 per cent increase. Kheda subsequently became the site of Gandhi's first satyagraha in India, supported by Sardar Vallabhbhai Patel and other leaders. Willingdon resigned as Governor in 1918, though his wartime administration received official appreciation.

Upon returning to Britain, he was soon appointed Governor of the Madras Presidency in 1919. Following the Montagu–Chelmsford Reforms of 1918, which introduced a measure of constitutional reform and

power-sharing, Willingdon initiated local elections to the Madras Legislative Council in November 1920 – among the first such elections in British India.

When Willingdon returned to India as Viceroy and Governor General, the country was grappling with the Great Depression. During this period, he oversaw substantial shipments of gold to Britain through the port of Bombay, reportedly amounting to £25 million sterling over a few months. Earlier, as Governor-in-Council, he had commissioned the Lloyd Barrage across the Indus River, a major irrigation project that brought millions of hectares in the Thar Desert under cultivation.

Upon being denied entry to the Royal Bombay Yacht Club, because he was accompanied by Indian guests, despite being the Viceroy, Willingdon established the Willingdon Sports Club in Bombay, with membership open to both Indians and British – a Club that continues to operate today.

Abridged from various public sources.

Bharat Bhushan
Honorary Secretary, BNHS

Sometime in 2006 or 2007, one of the reasons that drew me to Suchindram in Tamil Nadu was Suchindram Kulam, the ancient temple tank renowned alike for its sanctity and its birdlife; another was the prospect of meeting Ms Geetha Iyer. I recalled our earlier meeting in Mumbai, followed by lively correspondence. What impressed me most, even then, was her affection for insects. Life, however, has its diversions, and we lost touch for more than a decade.

Fast forward to December 8, 2025, when I was pleasantly surprised to receive an email from her about her book. A popular book on insects, published by Penguin, seemed at first a daring venture. I assumed the publisher had taken a considerable risk. I was mistaken. From its striking cover and elegant production to its engaging contents, the book reveals the intricate lives of insects in a simple yet compelling narrative style.

The title itself MINIATURE GIANTS is alluring In contrast to the tedious entomology textbooks of the present day, In contrast to the tedious entomology textbooks of the present day, Geetha's book offers stories enriched with scientific insight and enlivened by her own field notes. At moments, the prose rises to poetry: "There is geometry in their wing structure and mathematics in their flight."

***Miniature Giants*: Insect Stories Beyond the Ordinary**

By: Geetha Iyer

Published by: Penguin Random House India Pvt. Ltd, 2025

Size: 21 x 13 cm

Pages: xii + 218

Price: ` 699/-

Hardback

Reviewed by:

Asad R. Rahmani

Geetha declares herself, with endearing candour, a devotee of earwigs. Since Roman times, these harmless creatures – nearly 2,000 species strong – have been burdened with the curious reputation of crawling into human ears, from which their name derives. How such a shy, nocturnal insect with wavering legs might accomplish this feat remains unexplained, yet the legend endures. Earwigs are slender, nocturnal insects of the order Dermaptera, readily recognised by the forceps-like pincers, or cerci, at the tip of the abdomen. Geetha opens her book with a remarkably readable chapter on earwigs, aptly describing them as the original origamists. As she writes, "The earwig folds its hindwings using an origami-like series of joints and folds, except that there is a greater level of sophistication in their folding mechanism." Anyone who has struggled to refold a large map after opening it will appreciate the dexterity with which this small creature accomplishes the task after every flight.

This chapter explains why biomimicry seeks sustainable solutions to human problems. From the aerodynamics of bird wings inspiring more efficient aircraft, to termite mounds guiding climate-responsive architecture, and desert beetles informing water-harvesting innovations, biomimicry aligns human ingenuity with ecological wisdom. By understanding not merely how organisms appear, but how they function and coexist within ecosystems, it offers a hopeful pathway towards genuinely sustainable development.

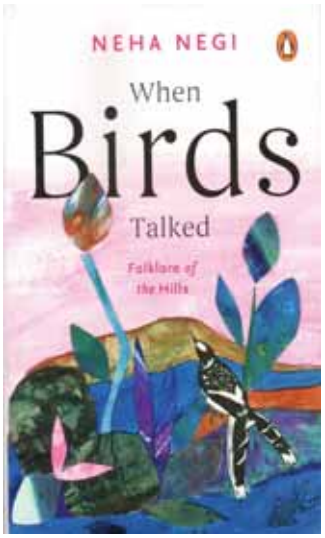
Among all animal groups that inspire biomimicry, insects occupy a foremost position. There is so much to learn from them that it is surprising how few people feel any affection for these creatures. Nearly 99 per cent of insects are harmless to humans; indeed, they are indispensable components of ecosystems. Some, such as termites and ants, are true ecosystem engineers, shaping entire landscapes. I hope this book will help transform public attitudes towards insects.

Yet the insect world is in grave trouble, largely through human culpability. Over the past two centuries, a lethal cocktail of chemicals – pesticides, weedicides, and herbicides, many alien to nature – has wiped out an estimated 60–65 per cent of insect populations. We do not even know how many species have slipped into functional extinction.

Every page of Geetha's book marvels at insect life. Its ten chapters, some bearing witty titles, contain a wealth of knowledge and insight that many larger tomes fail to provide. Above all, the book underscores the importance of insects in our lives, culture, mythology, and folklore. Can one imagine a world without butterflies, bees, dragonflies, mayflies, beetles, grasshoppers, or lanternflies? I cannot nor, I suspect, can anyone with even the faintest reverence for nature.

Geetha and Penguin have rendered a genuine service to our country by bringing out this marvellous book. My thanks to them both. I earnestly hope it will inspire many more Geethas in India!

Folklore lies at the heart of storytelling, as old as the human voice gathered around a fire. In the modern world, our most familiar narratives revolve around biographies and cultural chronicles, unrequited love and family discord, courtly intrigues and chivalric battles, historical fiction and sweeping conquests, murder mysteries and tales of survival, or the perennial rise from rags to riches, and sometimes the reverse. Animal folklore, however, belongs to an older register of the imagination. Here, animals appear as divine beings, ancestral spirits, or guardians of clans and tribes, as creatures endowed with intelligence or supernatural powers, and as mirrors of human virtues and vices. They are loyal like the dog, courageous like the lion, greedy like the hyena, wise like the owl, and much else besides. The catalogue is endless and cannot be exhausted in a single telling.



When Birds Talked: Folklore of the Hills
By: Neha Negi
Published by: Penguin Random House India Pvt. Ltd, 2025
Size: 20 x 13 cm
Pages: xxv + 158
Price: ` 599/-
Hardback
Reviewed by:
Asad R. Rahmani

India, with its immense linguistic and cultural diversity, is correspondingly rich in folklore. Some stories widely known, others confined to a region, a tribe, a subcaste, or even a single linguistic community. Africa, like India, possesses an equally deep and vibrant tradition of animal folklore. These stories, unwritten yet enduring, pass quietly from one generation to the next, often carrying some of the strongest moral lessons offered to children. I have long enjoyed the writings of Devdutt Pattanaik, who has authored more than fifty books and over 1,500 newspaper columns on mythology, religion, folklore, Indian culture, and related themes. Neha Negi's book belongs to this broad genre, though its focus is more intimate and specific – the birds of the western Himalaya. Born in this landscape and now based there, Neha writes with a closeness that allows her work to move fluidly between folklore, ecology, and art.

In her book, Neha recounts the folklore of ten birds of Uttarakhand. As she herself writes, "This is a collection of imagined fireside tales of how some of the birds spotted in the valleys and supernal mountains of Uttarakhand came to be. These stories weave together the mythology and culture of the region, giving a glimpse into ancient traditions and beliefs, their simplicity, and the wonted naivety that often shapes their worldview." The imagery is evocative, valleys echoing with birdsong, high mountains touched by a light that feels almost sacred, and stories shaped by a worldview both simple and profound.

The book features some of the most iconic birds of the Himalaya – the Kalij Pheasant, Himalayan Monal, Black-throated Tit, Green-backed Tit, Verditer Flycatcher, and Spotted Forktail among them. Alongside the folklore, Neha deftly interlaces natural history notes, offering readers glimpses into the lives and habits of these birds without disrupting the narrative flow. Her illustrations, created by the author herself, balance symbolism, naturalism, and minimalism, serving as quiet visual companions to the stories.

The book is engaging and pleasurable to read, though it is not without minor blemishes. For instance, the claim that the Himalaya are home to 150 endemic bird species, or that the Himalayan Monal is Critically Endangered, is incorrect. Of the approximately 980 bird species recorded from the Himalayan region, only about 15 are truly endemic, that is, confined entirely to this region and found nowhere else. Even these figures can vary depending on how one defines the geographical boundaries of the Himalaya. The Himalayan Monal, moreover, is currently listed under the Least Concern category of the IUCN Red List, not as Critically Endangered.

Despite these factual slips, I thoroughly enjoyed the book and would readily recommend it to readers interested in animal folklore and storytelling. We need many more such works, books that capture the folklore and oral traditions of different regions, cultures, and tribes, before they fade from memory, eclipsed by new generations increasingly absorbed in social media and detached from their own rich and layered heritage.

Guardians of the Grasslands

Inside the Life of a Bishnoi Forest Guard Protecting India's Vanishing Great Indian Bustard

Text: Sujit Narwade

India's grasslands are often described in official records as 'wastelands', a bureaucratic label that obscures both their ecological richness and their cultural significance. Spread across the country's arid and semi-arid regions, these ecosystems sustain some of India's most threatened wildlife, including the critically endangered Great Indian Bustard. Far from being empty terrain, the grasslands are living landscapes shaped by biodiversity, pastoral traditions, and communities whose identities remain closely tied to the protection of nature.

Among the people defending these fragile ecosystems is Kamlesh Kumar Bishnoi, a forest guard posted in Ramdevra, Pokhran area of Rajasthan's Desert National Park. Over the years, Kamlesh has become known not merely for patrolling remote desert landscapes, but for

Great Indian Bustard in Khetolai area
[Image: Pankaj Bishnoi]

representing a deeply rooted form of conservation grounded in faith, endurance, local knowledge, and an unwavering sense of duty.

"To me, these grasslands are treasure troves of life," Kamlesh says. "They shelter some of India's rarest wildlife – the Great Indian Bustard, the chinkara, and many others. They are not empty lands; they are living heritage. Protecting them is not just work. It is devotion."

Kamlesh's connection with wildlife began in childhood. Raised within the Bishnoi community – renowned for its centuries-old ethic of protecting trees and animals – he grew up listening to the teachings of Guru Jambheshwar, the 15th-century spiritual leader whose philosophy centred on ecological harmony long before environmentalism emerged as a modern discourse.

"When I was ten, I rescued a sick chinkara and carried it home on a camel so I could nurse it back to health," he recalls. "Losing my father at the age of eight made me resilient very early in life."

His journey into conservation was shaped as much by athletics. as by cultural values. Before joining the forest department, Kamlesh was a national-level middle-distance runner competing in the 800–1,500 metre events. He later entered the department after successfully completing a demanding 24-kilometre endurance test, an experience that prepared him for the physical realities of working in the Thar desert.

Even after years in the field, however, his emotional bond with the Great Indian Bustard remains intensely personal.

"If I go a day without seeing a bustard, I feel restless," he says. "I cannot sleep peacefully."

Life inside Desert National Park is marked by isolation and hardship. During peak summer, temperatures become so extreme that patrols must often be completed before mid-morning. Water scarcity, limited infrastructure, and difficult terrain remain routine challenges for frontline forest staff working in the region.

"The desert is unforgiving" Kamlesh says. "Water arrived through tankers, food was limited, and shade was our

An abandoned Chinkara fawn rescued and raised by a villager, has now matured into adulthood and reproduced in the Chacha enclosure managed by Kamlesh Bishnoi since 2021 [Image: Pankaj Bishnoi]

L: Kamlesh actively monitors the movements and activities of the Great Indian Bustard in the Pokhran region [Image: Kamlesh Bishnoi]
R: Kamlesh works alongside BNHS and the Gram Panchayat of Khetolai to monitor interactions between free-ranging dogs and local wildlife
[Image: Kamlesh Bishnoi]

Through continuous patrols across the Pokhran region, Kamlesh helps monitor bustard populations, curb wildlife hunting, and strengthen community awareness around conservation [Image: Pankaj Bishnoi]

Kamlesh collaborates with the Indian Army to build durable cemented waterholes that capture and retain water through the scorching summer months, reflecting his commitment to securing vital resources for wildlife conservation [Image: Pankaj Bishnoi]

greatest relief. We lived without fans or air conditioning. I would cool my chowki using roofs covered with vegetation that we watered daily."

Yet the harshness of the desert strengthened rather than weakened his commitment. Over time, Kamlesh built strong relationships with local villagers and with units of the Indian Army stationed around Pokhran. Those relationships later became important for conservation work, particularly in reducing poaching and monitoring sensitive habitats.

Kamlesh has long worked alongside wildlife conservationists and government officials in support of conservation efforts [Image: Pankaj Bishnoi]

A significant shift came in 2019, when scientists from the Bombay Natural History Society (BNHS) began working in Pokhran on grassland conservation initiatives. Kamlesh welcomed researchers into his home and became closely involved in habitat restoration efforts across the landscape.

"It was transformative" he says. "Together we worked on restoring ponds, removing invasive *Prosopis juliflora*, and protecting habitats for bustards."

The collaboration led to several important conservation interventions. Traditional water bodies, locally known as *naadis*, were restored in Pokhran and nearby villages to improve water availability for wildlife. Efforts were also undertaken to remove invasive *Prosopis juliflora*, a species that has significantly altered grassland ecosystems across western India. In addition, fenced enclosures were developed to support coexistence between Bishnoi families and wildlife, while nearly 1,200 hectares in Ramdevra were secured using predator-proof fencing to strengthen protection for bustard populations.

Kamlesh speaks of the birds with unusual intimacy, often describing them less as wildlife than as members of an extended family.

"Bustards are like family to me" he says. "Watching them fly fills me with joy."

That emotional investment also shaped his association with fellow conservationists such as the late Radheyshyam Pemani, who was widely respected for

his anti-poaching work in the region. Pemani's sudden death deeply affected many involved in grassland conservation and prompted difficult reflections about the emotional and moral costs of such work.

"It was devastating" Kamlesh recalls. "Many of us believed that good deeds naturally bring good fortune. His passing challenged that belief."

The experience forced him to reconsider ideas about sacrifice, justice, and responsibility within conservation work – a field where recognition is limited and personal risk is often unavoidable.

"Over time, I realised that goodness is not a transaction" he says. "It is a responsibility. We do this work not for reward, but for the survival of species and the future of our communities."

Despite years of difficult postings, Kamlesh never sought transfer to the territorial forest division, where living conditions and access to facilities are generally more comfortable. For him, remaining in the wildlife division was a conscious choice tied to purpose rather than convenience.

"The wildlife division is where the bustards live, where the chinkaras roam, and where the grasslands still breathe" he says. "Territorial postings may offer comfort. The wildlife division offers purpose."

That sense of purpose emerges from the convergence of several identities: Bishnoi by heritage, forest guard by profession, and nature lover by instinct. Rather than treating these roles separately, Kamlesh sees them as mutually reinforcing parts of a single ethical framework.

"Culture gives me roots, duty gives me structure, and passion gives me energy," he says. "That is why I can endure the hardships of the desert and still feel happiness each time I see a bird take flight."

At a time when conservation debates increasingly focus on policy frameworks, technology, and institutional interventions, Kamlesh's story highlights another, often overlooked dimension of environmental protection – one sustained by local memory, moral conviction, and everyday acts of persistence carried out far from public attention.

For Kamlesh, conservation does not begin and end within the boundaries of protected areas. It survives through communities willing to defend fragile ecosystems despite uncertainty, hardship, and sacrifice.

Kamlesh played a key role in establishing collaboration between the Gram Panchayat and the Indian Army [Image: Sanjay Bishnoi]

"Conservation is not limited to sanctuaries or government programmes," he says. "It lives in villages, farms, and communities where people choose to protect nature."

His message to younger generations reflects the same clarity that has shaped his life in the desert: "Protect what you love, even if it demands sacrifice. The rewards may not come immediately, but they survive in the future – in living species, healthy landscapes, and stronger generations to come."

In the vast silence of Rajasthan's grasslands, where the flight of the Great Indian Bustard grows increasingly rare, people like Kamlesh Kumar Bishnoi continue to stand as quiet custodians of a disappearing world. Their work may unfold far from headlines and institutions, but it remains essential to the survival of India's grassland ecosystems, and to the idea that conservation, at its strongest, is ultimately an act of care.

Sujit Narwade, Deputy Director at BNHS, coordinates the Bustard and Florican Programme, guides PhD research in Zoology, and serves on IUCN BSG and CAMEC.

A Duel on the Mountain Stage

Text and Photographs: Kallol Mukherjee

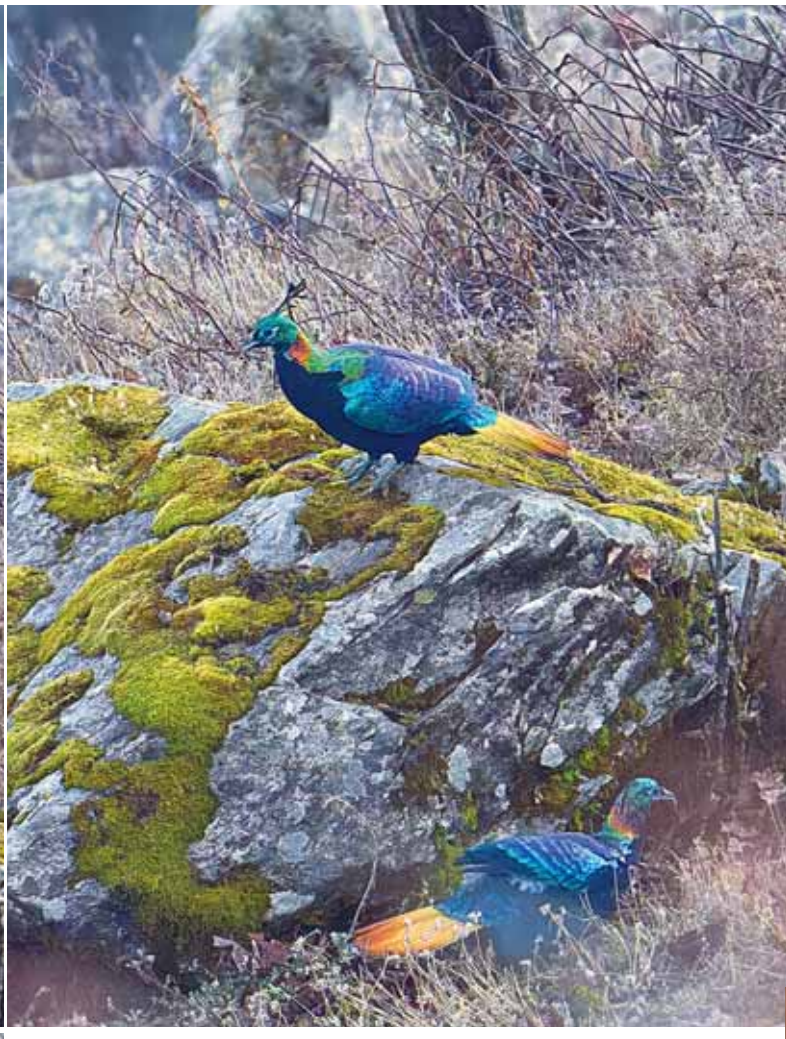
Male pheasants are well known for their flamboyant plumage and spectacular displays. The classic example is the Indian peafowl *Pavo cristatus*. Less widely known, but no less spectacular, is the Himalayan Monal *Lophophorus impejanus*, a jewel of the high Himalaya found at elevations between 2,000 and 4,400 metres. Well known to local communities – and historically hunted for both meat and feathers (a practice now banned) – the monal features prominently on the bucket list of many birdwatchers and photographers.

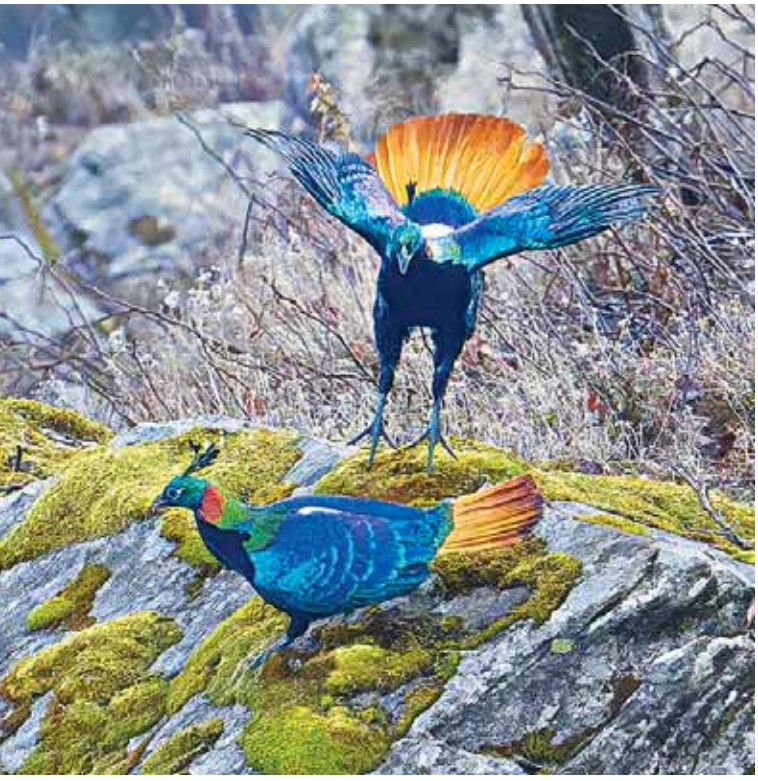
I encountered these birds recently in Chopta. On a walk towards the Tungnath Temple, I came upon an open grassy meadow dotted with a few scattered trees. Around eight monals were foraging across the clearing, including three resplendent males.

From a distance, I noticed a flat rock, approximately 8–10 feet in diameter, partially covered in green moss. Two male monals stood atop it, facing one another. Having witnessed monal fights on several previous occasions, I recognised their pre-combat postures and remained still, observing from a distance. After a few minutes, the confrontation escalated into a fight – a typical aerial duel marked by rapid bursts of action. At the end of the first bout, one bird dropped down from the rock, which stood about three feet high. I assumed the contest had ended. However, to my surprise, both birds soon returned to precisely the same positions atop the rock and resumed fighting.

This sequence repeated itself over the next 20–25 minutes. Each bout ended with one bird descending, only for both to return and recommence the contest from the same vantage point. In total, they engaged in approximately 15–18 such aerial encounters. It appeared as though the rock functioned as a designated arena – a stage upon which dominance had to be asserted.

Eventually, one of the males failed to return to the rock, while the other





... the battle started all over again.

remained standing there for several minutes, almost as if displaying his victory. He then descended calmly.

This behaviour was entirely new to me and deeply fascinating. Based on my limited knowledge, I had not previously considered that birds might select a specific 'stage' for what appeared to be ritualised combat. The observation left a lasting impression, prompting me to share it with readers of *Hornbill*.

Here, I have attempted to reconstruct one sequence of the encounter through a series of images.

Kallol Mukherjee is a wildlife photographer and conservation storyteller. An internationally awarded artist, he documents biodiversity, behaviour, and fragile ecosystems through compelling imagery.

Velavadar

Text and Photographs: Ram Gopalakrishnan

At the crack of dawn, the sky overhead was thick with birds. Not the pigeons or crows to which we city dwellers are accustomed, but harriers, with their distinctive bow-shaped wings and narrow tails. As they rose from their roosts to begin the day in the surrounding countryside, their sheer numbers formed a spectacle perhaps unmatched anywhere else in the subcontinent.

We were on a morning safari in Blackbuck National Park, Velavadar, a convenient three-hour drive southwest of Ahmedabad. This pocket-sized, 35 sq. km reserve is among the best places in India to see not only the iconic antelope, but also harriers, and the increasingly rare Indian wolf of Rudyard Kipling's *Jungle Tales* fame. Blackbucks require vast, open grasslands free from human or cattle disturbance – habitat that is now almost impossible to find outside a handful of protected areas such as Velavadar, in a country where grasslands are too often dismissed as 'wastelands' to be farmed or industrialised. Once a royal hunting preserve, the area was declared a sanctuary in 1976 and now supports an estimated 7,000 blackbucks, along with a host of other grassland species, including the rare Lesser Florican.

The morning sunlight glistened off the jet-black coats of the adult male blackbucks, their long spiral horns etched sharply against the horizon, while the younger males and females glowed in muted shades of gold and mauve. As they leapt across the road in alarm at our approaching vehicle, I found myself wondering

A magnificent male Blackbuck looked back at us, unafraid and assured in the protection offered by the sanctuary

L.: A female Lesser Florican, now rarely seen due to widespread habitat loss
R.: The Indian Wolf survives within rapidly vanishing grasslands

whether Velavadar had ever been considered for the reintroduction of the African cheetah as the habitat seemed ideal and the prey base abundant. Nilgai and Wild Boar dotted the landscape, and a Jungle Cat paused long enough to pose for a photograph.

At first, I took it for a jackal, so common in Indian forests. "Wolf!" exclaimed the guide. The much larger, Alsatian-like figure strolled along the roadside and then crossed it with the easy confidence of an apex predator at home, setting off a frantic bout of filming from us. It was my first-ever wolf sighting. In most other protected areas, finding one is akin to searching for a needle in a haystack.

As sundown approached, another remarkable spectacle unfolded. Harriers seemed to drop from the sky on to the grassland, and even on to the road before us, to 'park' for the night. The basic blueprint of harrier plumage, pale males and darker females, played out across Montagu's, Pallid, and the occasional Marsh Harrier, offering a real-life lesson in identification far more immediate than any field guide.

Though harriers dominated the raptor list, scarcely a large bush or tree was without a Short-toed Snake-eagle, Greater Spotted Eagle, Common Kestrel, the rarer Lesser Kestrel (a personal lifer), White-eyed Buzzard, Shikra, or Black-winged Kite. The resonant whoop of Common Cranes drew our gaze skywards: an apparently never-ending line flew overhead in formation before settling in nearby fields. A Long-billed Pipit, too, was a personal lifer. Our bird list reached 82 species, a testament to the richness of the landscape, bolstered by a water body teeming with Greater Flamingos, Great White and Dalmatian Pelicans, and assorted ducks.

One moment stood out for its sheer surge of adrenaline – a female Lesser Florican briefly trotted into view. These shy and elusive birds, now endangered due to habitat loss, are almost impossible to see outside the monsoon season – and even then, it is usually only the male that appears, performing its extraordinary, bounding courtship display. This fleeting encounter felt like the final, perfect flourish.

So, if you wish to feast your eyes on blackbucks and harriers, and perhaps chance upon the occasional bonus of a wolf or a florican, you know where to go.

Ram Gopalakrishnan is a physician practising in Chennai. He enjoys birding in remote locations and hopes to stimulate love for nature and its conservation through his writings.

Interesting Encounters with Earthworms

Text and Photographs: Sachin Ranade

On October 5, 2024, I was travelling through the scenic Morni Hills in Haryana, part of the Shivalik range – the outer Himalaya. The border of Himachal Pradesh lies not far from this region. Forests flanking the approach road consist largely of broad-leaved species; however, as the elevation increases, Chir Pine *Pinus roxburghii* becomes more prominent. The small villages in the area are now developing, with farms cultivating tomatoes, strawberries, and other vegetables.

I had lived in this region during the early years of my work on the vulture conservation project, and since then I have retained a deep appreciation for these hills. In the past, they were strongholds of the White-rumped Vulture *Gyps bengalensis*, and they continue to serve as important wintering grounds for migratory species such as the Himalayan Vulture *Gyps himalayensis* and the Cinereous Vulture *Aegypius monachus*. This visit was, therefore, something of a pilgrimage for me – a return, after a long interval, to the place where my interest in vultures first took shape.

Dead earthworms scattered across a road in Morni Hills, Haryana

As our vehicle moved at a moderate speed along the winding road, I noticed something unusual: the road surface was strewn with dead earthworms. I stopped to examine the scene more closely. Within an area of approximately 10 × 10 square feet, I counted at least 40 individuals. There were very few predators present to take advantage of what might otherwise have been an abundant food source. This pattern extended for at least one and a half kilometres, with additional smaller patches beyond. By rough estimation, many thousands of earthworms may have perished along this stretch of road, although it is equally likely that many others successfully crossed.

For me, this was an astonishing observation. It may not attract the same attention as phenomena such as the so-called 'bird suicides; of Jatinga, nor is it as widely recognised as the mass trapping of Amur falcons in parts of north-east India. Yet, from a biological perspective, it was no less striking. It remains unclear whether these earthworms had escaped from vermiculture units or were native populations emerging in response to the damp, humid conditions following an overnight drizzle.

I collected a moribund specimen, preserved it, and submitted it to the Zoological Survey of India. Dr C.K. Mandal promptly identified it as *Metaphire posthuma*. I subsequently requested his assistance in identifying two additional specimens collected in Assam. Earthworms in that region have long intrigued me, first because of their remarkable size – some individuals exceed a foot in length, resembling small snakes. Their casting behaviour is equally noteworthy. It is well established that earthworms play a vital role in soil turnover, bringing deeper layers to the surface. However, in the fields of Assam, the casts are often conspicuously tall, rising above ground level. When grasses are burned or grazed down by cattle, these casts become exposed, resembling miniature clusters of towers. The species responsible were identified as *Eutyphoeus gammiei* and *Eutyphoeus festivus*.

Top: An earthworm seen in Rani, Kamrup district, Assam, shown alongside a 15 cm scale for comparison
Bottom: Cast of an earthworm seen in Rani, Kamrup district, Assam, shown alongside a 15 cm scale for comparison

We are introduced to earthworms early in our school education, often described in textbooks as the farmer's 'true friends'. Yet there remains much to learn about these humble organisms, whose capacity to transform and aerate the soil is fundamental to ecosystem health. There is a pressing need to better understand and appreciate their ecological importance.

Sachin Ranade is Assistant Director at the BNHS, working on vulture conservation for last 25 years. He has keen interest in the various taxa and their biology.

Aravallis at a Crossroads:

Battle for India's Ancient Range

Text and Photographs: **Kishor Rithe**

I landed at Kishangarh Airport, near Ajmer in Rajasthan, and almost immediately understood why such infrastructure had been established in what might otherwise appear a relatively small town. Kishangarh is, in fact, a major hub for the marble trade, its economy deeply intertwined with mining-driven industries that have reshaped both landscape and livelihoods.

A newly resettled village within Sariska

The Aravalli hills within Sariska Tiger Reserve

As I travelled onward, the Aravalli Hills rose into view. They appeared, at once, ancient and vulnerable, like a lone goat standing amidst slaughterhouses, gazing outward with a quiet, almost uncertain resilience, as though unsure of their own survival. This impression is grounded in the lived realities of communities who have long defended these hills. Among them are the Bishnois of Rajasthan, who have repeatedly demonstrated, most recently in widely reported protests, that they are willing to risk their lives to protect trees, wildlife, and landscapes from destruction.

Even after nearly half a century, India continues to remember the iconic Chipko Movement – a defining example of non-violent environmental resistance that originated from Rajasthan. Today, a comparable ecological struggle is unfolding across north-western India. The story of the Aravalli mountain range is rapidly emerging as one of the most significant conservation narratives of the twenty-first century.

This renewed attention has been driven largely by two recent orders of the Supreme Court of India, issued within just over a month, and by the widespread protests that followed across Rajasthan and neighbouring states. Amplified by social media and grassroots mobilisation, these developments have transformed what began as a technical legal matter into a broader public debate. The effort to safeguard the Aravallis now stands poised to assume a prominent place in India's environmental history.

To understand the present moment, it is necessary to begin with the legal developments that set these events in motion. On May 9, 2024, the Supreme Court (SC) emphasised the need for a precise and uniform definition of the 'Aravalli Hills and Ranges'.

It directed the Ministry of Environment, Forest and Climate Change (MoEF&CC) to constitute an expert committee to address this issue. The committee subsequently submitted a report proposing a standardised definition intended to bring clarity to a long-contested question.

According to the report submitted to the SC, any landform within designated Aravalli districts with an elevation of 100 metres or more above the surrounding local relief would be classified as an 'Aravalli Hill'. Two or more such hills located within 500 metres of one another would constitute a 'Range'. Local relief was to be determined using the lowest contour line encircling the landform, with the entire enclosed area – including slopes and associated geomorphological features – treated as part of the hill. Inter-hill areas within a range were to be delineated through buffering methods.

On November 20, 2025, a three-judge bench of the Supreme Court, led by Chief Justice B.R. Gavai (Writ Petition (C) No. 202 of 1995), formally accepted this definition in the long-running *T. N. Godavarman Thirumulpad v. Union of India* case. The judgement was presented as a corrective step aimed at plugging legal loopholes, curbing illegal mining, and establishing a uniform regulatory framework for the Aravallis.

In its observations, the Court underscored the ecological importance of the Aravalli range, describing it as one of the oldest mountain systems in India, extending across Delhi, Haryana, Rajasthan, and Gujarat. It recognised the Aravallis as a critical 'green barrier' against the advance of the Thar Desert, protecting the Indo-Gangetic plains and contributing to the recharge of vital aquifers feeding rivers such as the Chambal and Sabarmati. Importantly, the judgement linked the protection of the Aravallis to India's commitments under the United Nations Convention to Combat Desertification, thereby elevating the issue from a regional concern to one of national and global significance. It also documented the extensive degradation already inflicted upon the region through deforestation, illegal mining, urban expansion, and infrastructure encroachment.

The Court further noted that the Aravallis host numerous wildlife sanctuaries, four tiger reserves, and critical wetlands – including Sultanpur, Sambhar, Siliserh, and Asola Bhati – as well as aquifers that sustain river systems such as the Chambal, Sabarmati, Luni, Mahi, and Banas. To safeguard these ecological assets, the Court proposed stringent protections, including absolute no-mining zones in protected areas, tiger reserves, wildlife corridors, eco-sensitive zones with a minimum one-kilometre buffer, and areas surrounding Ramsar sites, notified wetlands, CAMPA plantations, and government forests.

At the same time, the judgement permitted existing legal mines to continue operating under strict compliance and monitoring, with the possibility of closure in the event of violations. It also mandated the preparation of a comprehensive Management Plan for Sustainable Mining (MPSM), to be developed by the Indian Council of Forestry Research and Education. Modelled on the Saranda mining framework, this plan was intended to classify the Aravalli landscape into no-go zones, eco-sensitive areas, restoration zones, and limited mining areas based on cumulative environmental impact and ecological carrying capacity.

Despite these protective provisions, the judgement quickly became controversial because it retained a conditional pathway for continued mining. Many stakeholders argued that the newly accepted definition could weaken protections in practice. One of the most contentious aspects was the adoption of a uniform definition, which some felt was less restrictive than earlier interpretations used by agencies such as the Forest Survey of India.

Campaigners described the order as a 'death knell' for the Aravallis. By classifying only landforms above 100 metres as 'hills', critics argued that a substantial proportion of the range in Rajasthan – comprising lower, undulating formations – might effectively lose protection. Environmental groups warned that this could legitimise mining in areas previously treated as ecologically sensitive, thereby increasing development pressures. Social media campaigns amplified these concerns, with some activists claiming that nearly 90 per cent of the Aravalli range in Rajasthan

could be affected under the new definition.

The debate soon expanded into a broader question concerning the very viability of 'sustainable mining' within such a fragile ecosystem. While the Court envisioned a regulated framework, many activists rejected the premise altogether, arguing that any form of mining in the Aravallis would inevitably be ecologically damaging. They called instead for a complete prohibition on mining across the range, including currently operational sites.

Public outrage grew rapidly. What began as online mobilisation soon translated into widespread protests across the region. Environmentalists, local communities, and civil society groups voiced fears of irreversible ecological damage and demanded that the entire Aravalli range be declared an Ecologically Sensitive Area.

The Aravalli Hills, often described as the 'green lungs' of north-western India, have sustained diverse ecosystems and supported local livelihoods for centuries. Yet their ancient geological formation also renders them rich in mineral deposits, placing them under constant pressure from extractive industries. The controversy has revived long-standing concerns regarding weak enforcement and policy ambiguity, which many believe have

The forests of Sariska are a reminder of what the Aravallis can look like when nature is given the space and protection it needs

contributed to the gradual degradation of the Aravallis over several decades.

Although the Supreme Court imposed restrictions such as no-mining zones and regulatory oversight, protesters continued to demand a complete ban on mining across the region. They also opposed the proposed Management Plan for Sustainable Mining (MPSM), arguing that such a framework might legitimise continued extraction rather than prevent it.

Consequently, the preparation of the MPSM emerged as a central point of contention. The Court directed the MoEF&CC to prepare this plan for the entire Aravalli range – from Gujarat to Delhi – based on rigorous scientific assessment. The plan was expected to identify permissible mining areas, ecologically sensitive zones, conservation-critical regions, and restoration areas. It was also to include an analysis of cumulative environmental impacts and ecological carrying capacity, along with detailed post-mining restoration measures.

For many activists, however, the very notion of 'sustainable mining' within such a fragile landscape remained fundamentally flawed. They questioned whether any form of extraction could truly be reconciled with long-term ecological preservation.

A quiet forest path winding through the wilderness of Sariska Tiger Reserve

Amid mounting criticism, the outgoing Chief Justice publicly defended the November judgement, asserting that it sought to strengthen environmental governance by eliminating legal ambiguities. This reassurance, however, did little to quell public concern.

The situation took a decisive turn on December 29, 2025. A new three-judge bench of the Supreme Court, led by Chief Justice Surya Kant, stayed the recommendations and directions of the November judgement. Recognising the potential for misinterpretation and regulatory gaps, the Court ordered the constitution of a High-Powered Expert Committee (HPEC) to reassess the framework.

This committee was tasked with clarifying the definition of the Aravalli Hills and Ranges, identifying excluded areas, evaluating ecological risks associated with mining, and conducting a comprehensive analysis of environmental impacts. It was also asked to undertake a multi-temporal assessment, examining both short-term and long-term consequences of the proposed framework.

In addition, the Court directed that no new mining permissions or renewals be granted without its approval, based on earlier definitions. Notices were issued to the Union government and the states of Delhi, Rajasthan, Haryana, and Gujarat, and assistance was sought from legal and technical experts. This interim relief was widely welcomed by protestors and environmental groups. For the moment, it has paused further damage and created space for a more informed and balanced reconsideration of the issue.

Subsequently, the process of constituting the HPEC – entrusted to the Central Empowered Committee – was completed with inputs from the MoEF&CC and formal approval by the Court in March 2026. However, protesters raised fresh concerns regarding the composition of the committee, noting the absence of key expertise, particularly in wildlife ecology and geospatial analysis. The media reported, "This HPEC is headed by a Chair responsible for the highly controversial Green Credit program, which is under litigation in the form of a contempt of a SC order itself.", mention the media reports.

I consider that these developments form part of a broader pattern of judicial intervention in environmental governance – a strong reliance on judicial intervention to address policy gaps, often accompanied by uneven implementation and recurring contestation. In December 2024, for instance, the SC, in another matter, directed the formulation of a national policy for the management of sacred groves, or 'Orans', in Rajasthan, calling for their recognition as community reserves. Earlier, in 2018, it had ordered their inclusion within the category of 'deemed forests'.

Sariska: A Parallel Conflict

The tensions surrounding the Aravallis are not confined to abstract legal definitions. They are already playing out on the ground, most visibly in the ongoing controversy over the rationalisation of boundaries in Sariska Tiger Reserve.

An area of 765.80 sq. km was declared the Sariska Wildlife Sanctuary on August 5, 1958, by the Rajasthan government. In 1978, about 800 sq. km, including this sanctuary, was brought under Project Tiger. Later, on August 27, 1982, a larger area of 866 sq. km – covering the sanctuary – was designated as a National Park.

In 2007, the National Tiger Conservation Authority (NTCA) asked the state to notify key protected areas within the Sariska Tiger Reserve (STR) as Critical Tiger Habitat (CTH). The state went further and declared 881.11 sq km as CTH, extending beyond the existing sanctuary and national park boundaries. This created a problem. By law, every CTH must have a surrounding buffer zone, which is treated as an Eco-Sensitive Area (ESA) under the Environment (Protection) Act, 1986. Mining is banned in ESAs. Realizing that the expanded CTH could restrict mining activities outside existing protected areas, the government moved to revise – or 'rationalize' – the boundaries and sent a proposal to the MoEF&CC.

This move drew criticism because several mines were operating near the edges of the reserve.

Environmentalists argued that changing the boundaries could allow mining activities that had earlier been stopped by the SC.

The issue gained momentum in 2023, when the SC took up a suo motu case on the unregulated entry of vehicles into Sariska. The Court widened the case to include related concerns such as mining, grazing, relocation of villages, pilgrim access to the Pandupole Hanuman Temple, and staff shortages. It asked the Central Empowered Committee (CEC) to examine the proposed boundary changes. In December 2024, the Court directed that the process be completed within a year, subject to its approval. The CEC later supported the changes, citing 'poor demarcation' as a reason for illegal mining, and recommended approval of the revised CTH boundaries.

Meanwhile, approvals for the plan moved unusually fast. The Rajasthan State Wildlife Board cleared it on June 23, 2023. Within two days, the NTCA approved it, and by June 26, the National Board for Wildlife's standing committee had also given its nod – completing the process in just four days. This speed raised concerns. Critics said the rushed approvals could benefit more than 50 marble and dolomite

Top: Chitals and Sambar at a serene waterhole within Sariska Tiger Reserve
Bottom: A Grey Francolin rests quietly within the rugged landscapes of Sariska Tiger Reserve

mines that the SC had shut down for being too close to tiger habitat. Under the proposed changes, shifting the boundaries in some areas would move several quarries outside the one-kilometre no-mining zone, potentially allowing mining to resume.

I visited the Sariska Tiger Reserve (STR) in April 2026 to understand the current situation and the perspective of the reserve's administration. Officials proposed expanding the Critical Tiger Habitat (CTH) from 881 sq. km to 924 sq. km, while reducing the buffer zone from 245 sq. km to 203 sq. km. This proposal has drawn opposition from environmentalists, who argue that it could reopen the door to mining activities previously halted by the SC. Concerns are particularly focused on the southern part of the reserve, in the Tehla range, which is rich in marble and dolomite deposits.

The MoEF&CC acknowledged that the SC's December 2024 order requires a draft notification and consultation with stakeholders before any changes are finalized. It stated that objections would be invited and considered to address concerns, and that the proposal could be sent back to the National Board for Wildlife (NBWL) if needed.

In a compliance report submitted on July 22, 2025, the CEC stressed the need for public consultation and a review of the plan. Petitioners, including the Alwar-based Tiger Trails Trust and the Gurgaon-based People for Aravallis, told the Court that the process contained serious gaps. They argued that local gram sabhas had been overlooked, despite the Forest Rights Act (FRA) requiring their consent for such decisions.

In December 2025, the SC clarified that any changes to STR boundaries must go through a full public consultation process before implementation. It emphasized transparency, adherence to the law, and the protection of critical tiger habitats. Following this direction, the MoEF&CC has invited public suggestions and objections, and is now reviewing the proposal before taking a final decision.

Taken together, the Aravalli and Sariska cases illustrate the complexity of balancing conservation and development in contemporary India. They highlight not only the ecological fragility of ancient landscapes but also the institutional challenges of governing them.

Judicial interventions – whether in the Aravalli case or in earlier rulings on sacred groves (Orans) in Rajasthan – have played a crucial role in foregrounding environmental concerns. Yet they also reveal the limits of court-driven governance in the absence of robust administrative capacity and political consensus.

Way ahead

The final outcome of the Aravalli case, however, remains uncertain. The Supreme Court's eventual ruling will have far-reaching implications – not only for the future of the Aravalli Hills but also for the broader balance between conservation and development in India. It will be interesting to see how the newly appointed HPEC will deal with the arguments of the local communities for protecting entire Aravalli mountain from mining.

One thing is very clear that Aravallis have stood for millions of years, shaping landscapes, climates, and cultures. Today, they find themselves at a critical juncture, caught between legal definitions, economic interests, and ecological imperatives. Whether they continue to serve as a natural barrier against desertification or gradually erode under human pressure will depend on the choices made in the courtrooms and corridors of power in the months to ahead.

Kishor Rithe, Director, BNHS, has been working for wildlife conservation through sustainable livelihoods, conservation action, advocacy, and policy for over three decades.

Published on March 31, 2026 by the Honorary Secretary for Bombay Natural History Society, Hornbill House, Dr Sálim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400 001, Maharashtra, India.

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